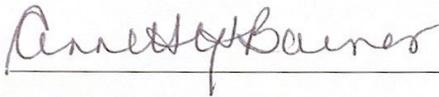


Increasing Patient Engagement in Primary Care  
following Transitional Care  
By Ally Emerson

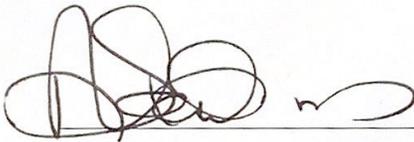
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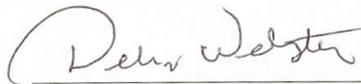
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Increasing Patient Engagement in Primary Care  
following Transitional Care

By

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DNP Project submitted to the School of Nursing  
of Salisbury University in partial fulfillment of the requirements  
for the degree of  
Doctor of Nursing Practice  
April 14th , 2021

PATIENT ENGAGEMENT FOLLOWING TRANSITIONAL CARE

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By

Ally Emerson

2021

### **Abstract**

Overutilization of emergent care for primary health needs in the United States leads to poor utilization of resources, avoidable hospital readmissions, and costs an estimated 17 billion dollars annually. Issues impacting transition of care can cause incomplete follow-up and continued patient reliance on the emergency department (ED) for healthcare. Ensuring timely follow-up and engagement in primary care for patients discharged from acute care are major goals to reduce this economic burden and ensure effective care coordination. Transitional care provided by an after-care clinic (ACC) offers solutions to increase patient follow-up and coordinate entry, or engagement, in primary care. An ACC provided by a regional, urban health system has reduced overutilization and readmissions; however, engagement into primary care following acute care remains a challenge for the low income and uninsured population serviced.

This Doctor of Nursing practice (DNP) project implemented evidence-based practice (EBP) interventions of intra-appointment social determinants of health (SDOH) screening and post-appointment nurse-directed reminder phone calls to increase patient engagement in primary care following a transitional care appointment. Engagement was defined as completion of one primary care appointment within three months after the patient's initial ACC visit. With the coronavirus (COVID-19) pandemic, continuity of care was provided with the addition of telemedicine; and although ACC staff hours were reduced and roles shifted, adding EBP to the bundled-care, interdisciplinary team approach for patients under the age of 40, who were uninsured or Medicaid insured, was cost effective and increased engagement in primary care.

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## **Introduction**

The United States (U.S.) spends over ninety percent of the nation's 3.3 trillion dollars in annual health care expenditures on chronic health care needs, and these costs continue to rise and place financial strains on health care organizations, (CDC, 2019; Kim et al., 2015). Patients with no primary care have worsening chronic conditions that places strains on health care organizations including overcrowding and decreased quality of care (Davis et al., 2017).

Lack of patient entry or engagement in primary care leads to overutilization of emergency departments (ED) for non-emergent health care needs causing wasted resources and avoidable hospital admissions and readmissions that cost an estimated 17 billion dollars a year (Daly, 2019; Galiana and Haseltime, 2019). Patient entry and engagement in primary care needs to be emphasized, because people actively involved in primary care have better health outcomes including lower morbidity and mortality (Otsuka et al., 2019; Sheridan et al., 2015).

Issues impacting transition of care from inpatient to outpatient settings can cause incomplete patient compliance with follow-up and continued reliance on ED for health care (Elliot et al., 2016; Otsuka et al., 2019). Failure to follow-up in primary care after acute care contributes to ongoing disease burden, increased morbidity, and mortality for patients in the U.S. (Davis et al., 2017). Ensuring timely follow-up and engagement in primary care for patients discharged from acute care are major goals to reduce the overall economic impact and ensure effective care coordination. Transitional care is utilized by some healthcare organizations to facilitate care transition, increase patient compliance

with follow-up, and minimize utilization of ED for avoidable health care needs (Elliot et al., 2016; Otsuka et al., 2019).

### **Problem Statement**

The World Health Organization and Healthy People 2020 identified important goals to deliver better healthcare and eliminate social disparities (Agarwal et al., 2017; Healthy People, 2019). Social disparities, or social determinants of health (SDOH) can significantly reduce access to care due to “socioeconomic status; racism and discrimination; poverty and income inequality; and lack of community resources, which account for as much as 55% of health outcomes” (Marmot, 2018, p. 4).

Individuals with complex health conditions including physical, mental, and substance use problems often lack primary care and experience low socioeconomic status, low health literacy, and housing issues that supersede health care needs (Komaromy et al., 2018). Because of these social barriers, patients are less likely to engage in health-promoting actions or establish primary care (Davis et al., 2017; Gottlieb et al., 2016; Gottlieb et al., 2020; Komaromy et al., 2018). Using comprehensive SDOH assessment to provide community support to patients will improve delivery of person-centered healthcare and promote patient engagement (Marmot, 2018).

### **The Inner-City Population**

Low socioeconomic status, lack of education and transportation, and financial barriers contribute negatively to engagement in primary health care and health outcomes (Arpey et al., 2017; Komaromy et al., 2018; Thompson et al., 2015). A study conducted by a regional healthcare system concluded that, “access to quality care is lacking for many inner-city residents, and rates of uninsured, acute hospitalization, and emergency

department utilization are high” (Block et al., 2012, p. 974). With rising healthcare costs, expecting ED to provide primary care to uninsured patients with chronic health conditions that could be managed in primary care is unrealistic (Kim et al., 2015).

The inner-city population for this Doctor of Nursing (DNP) project has experienced the highest health disparities with the shortest length of life and lowest quality of life within the state (Open Data Network, 2019). The local health system developed transitional care through the After-Care Clinic (ACC) to fill a gap in post-acute care for the high-risk population. The mission of the ACC is to provide a safety net for patients discharged from acute care who need rapid follow-up but lack or cannot secure timely primary care.

Identifying evidence-based practice (EBP) interventions that enhance efforts to transition patients to primary care is essential to reduce disease burden and increase health outcomes for this vulnerable population. Implementing EBP that addresses barriers to entry relies heavily on care coordination and an interdisciplinary approach to integrate patient-centered, cost effective care, and assessment of needs (Conway et al., 2019). Given the complex issues faced by patients after acute care discharge, care coordination by nurses and other team members within the ACC should be a successful strategy to increase patient engagement in primary care (Hochman et al., 2019).

### **Purpose**

The ACC’s patient population includes inner-city residents who utilize the ED but lack routine primary care. Since opening in 2015, the ACC has helped reduce ED utilization and decrease hospital readmissions for the health system. Continued

evaluation of population data identified opportunities to improve patient engagement in primary care following the ACC visit.

Data from January 2016 to January 2018 revealed that 38.1% of Medicaid insured and uninsured people were engaged in primary care following their ACC visit. Further data analysis revealed three subsets that were least engaged including persons: (a) under 40 years old, (b) who did not interact with a pharmacist or nurse, and (c) who did not receive education on disease processes or medication compliance and use. Identifying EBP interventions targeted to the at-risk population was critical to meet the challenge of increasing patient engagement.

### **Bundled Care Approach**

Given the complex issues faced by patients after ED or acute care, bundled care and coordination models recognize that multidisciplinary skills are needed. These models utilize pharmacists, nurses, and other professionals to interact with patients to reduce hospital readmissions and expedite engagement (Conway et al., 2019; Farrell et al., 2015; Hochman et al., 2019). The most successful transitional care programs use bundled-care interventions in a team-based, patient-centered approach (AHRQ, 2018; Hochman et al., 2019).

The ACC uses a bundled care, interprofessional approach for all patients. Clinical pharmacists conduct medication reconciliation while nurse and social workers assess physical and psychosocial needs of the patient. Identification and implementation of additional EBP interventions for team application should further support the ACC team's efforts.

### **PICOT Question**

To improve patient engagement in primary care for the high-risk subset population of the ACC, the PICOT format (i.e., P: population, I: issue/intervention, C: comparison, O: outcome, T: period) was used for this DNP project to narrow and focus a problem for EBP review and implementation. The PICOT question developed was “Does implementation of intra-appointment social determinants of health (SDOH) screening and post-appointment nurse-directed reminder phone calls for Medicaid insured and uninsured patients under age 40 referred to the after-care clinic (ACC) increase patient engagement in primary care within three months following the ACC visit?”

### **Review of the Evidence**

A literature search related to the PICOT question was conducted using MEDLINE, CINAHL, PubMed, the Cochrane Library, Nursing and Allied Health Science and Health Source: Nursing/Academic Edition. Articles were limited to scholarly publications, qualitative or quantitative research, and peer-reviewed work. The search parameters employed five keywords and phrases: “patient engagement,” “social determinant screening,” “primary care,” “transitional care units” and “after care clinics.” When searched using combined functionality, these terms elicited few results related to the PICOT question; however, publications found in the initial search offered insight to additional terms related to key aspects of the project.

The five keywords and phrases were then combined with secondary terms using Boolean operators “and/or” to include: uninsured, after care clinic, health disparities, emergency department overuse, SDOH, post-discharge, case manager, Medicaid,

strategies to improve engagement, reminder phone calls, and appointment attendance, to produce more results. The search using the combined terms yielded 563 articles.

An additional 27 articles were obtained from searching references of publications, specifically Google Scholar. Duplicate studies from different databases were removed, resulting in 401 articles that were screened for inclusion and exclusion criteria. Inclusion criteria were English language, peer reviewed journals, and publications within the last five years unless seminal work. Articles that contained research involving uninsured and limited access populations in underdeveloped countries as well as pediatric populations were included. Exclusion criteria included articles transcribed in a foreign language, insured populations and work published prior to 2015 which allowed for a manageable volume of current evidence.

After inclusion and exclusion criteria were applied, the final set of publications consisted of 54 research articles. However, 33 of those articles were excluded from use for several reasons including low level of evidence/design, published prior to 2015, lack of relevance, and only supportive data without statistical significance. Finally, the publications were narrowed down to 21 articles, 18 quantitative and three qualitative studies, utilized for this DNP project. The process of the literature selection is overviewed and presented as a PRISMA diagram (Appendix A).

### **Analysis of the Evidence**

The 21 articles related to the PICOT question used to guide the DNP project are included in the Table of Evidence (Appendix B) and were reviewed for themes, evidence-based practice (EBP) interventions, and overall quality. The main themes and

interventions are presented to include SDOH screening, after-care clinics for transitional care, and care coordination through interdisciplinary and nurse-led efforts.

### **Social Determinants of Health (SDOH) Screening**

One of the most important attributes to promote patient engagement is integrating behavioral and social interventions. Unmet social needs, or social determinants of health (SDOH), have a significant impact on a person's health by affecting access to care and ability to fully engage in healthcare (Gottlieb et al., 2016). Screening for unmet social needs can assist a patient in obtaining resources to meet not only social but also their health needs. Transitional care clinics such as the ACC are in a unique position to assist patients with limited resources and complex healthcare problems.

Few studies have evaluated increasing patient engagement in primary care for specific populations, such as uninsured or Medicaid insured, by directly using SDOH screening. Moreover, research evaluating the effect of SDOH screening in transitional or after care clinics was not found. However, recent literature highlighted the importance of completing SDOH screening to provide more patient-centered care (Chisolm et al., 2019; Gottlieb et al., 2016; Naz et al., 2016).

Gottlieb et al. (2016) evaluated the effects of SDOH screening and in-person resource assistance for social needs. The researchers found that screening and linking families with services significantly improved children's overall health status within six months. Chisolm et al. (2019) found that housing instability and food insecurity were the most common needs causing social referral from primary care providers. After assessing SDOH including food insecurity, unstable or low-quality housing, problems paying bills,

and difficulty affording transportation, barriers to healthcare were significantly decreased leading to increased access to care (Gottlieb et al., 2016; Gottlieb et al., 2020).

These findings deepen the understanding of effective social risk related interventions. As disparities continue, additional research examining the effects of SDOH on health will continue to highlight poor health outcomes and stimulate new ways to increase patient engagement (Institute of Healthcare Improvements, 2016).

Overall, the studies supported SDOH screening to achieve better health outcomes, health equity and improve engagement in healthcare for at-risk patients (Arpey et al., 2017; Gottlieb et al., 2020; Komaromy et al., 2018; Naz et al., 2016; Thompson et al., 2015). The ACC utilized for this DNP project had a SDOH screening tool embedded in the electronic health record (EHR) that could be accessed easily.

### **Transitional (After Care) Clinics**

For uninsured and Medicaid insured populations, healthcare has been routinely provided in ED (Kim et al., 2015). Greater engagement and continuity of care with primary care is associated with significant reductions in ED visits among Medicaid enrollees and the uninsured population (Carleton, 2019; Davis et al., 2017; Elliot et al., 2016; Kim et al., 2015; Otsuka et al., 2019). One strategy for reducing ED visits due to limited access to primary care involves connecting patients through transitional care or after care clinics. These clinics ensure timely follow-up for vulnerable populations to improve the efficiency and efficacy of the health care system (Carleton, 2019; Davis et al., 2017; Dowd-Green et al., 2017; Elliott et al., 2016; Kim et al., 2015; Mena-Carrasco et al., 2016; Otsuka et al., 2019).

Transitional care clinics provide follow-up for patients' post-acute care and strive to link them to primary care for prevention and chronic care (Elliot et al., 2018; Otsuka et al., 2019). Use of transitional care through the ACC is crucial to connect patients with primary care in underserved areas such as the DNP project's inner-city community.

### **Nurses and Care Coordination**

The nurse's role has evolved from traditional individual patient interaction to an expanded scope of practice as a care coordinator (AHRQ, 2018). According to a systematic review by Conway et al. (2019) care coordination has improved patient and health service outcomes specifically when frequent in-person interactions, monitoring of disease status, transitional care, and application of behavior change principles were involved. Conway et al. (2019) further reported that nurse care coordination resulted in positive results on several health outcomes including clinical measurements, quality of life, patient satisfaction, adherence to treatment, self-care, and service use. Care coordination frequently reduced readmissions within 30 days and demonstrated "a reduction in overall health-care cost" (Conway et al., 2019, p. 287).

Follow-up in primary care without a reminder is challenging to low-socioeconomic populations as their healthcare needs often compete with basic survival needs (Gottlieb et al., 2016). Jennings et al. (2016) found that persons with financial strain, including the homeless, do have high access to technologies with use similar to the general population. Mobile phone access can assist healthcare workers such as nurses disseminate important information to patients (Foyabo & Bessetti-Barrett, 2019).

Several studies demonstrated that post-discharge phone call reminders by a nurse increased clinic appointment attendance (Foyabo & Bessetti-Barrett, 2019; Jennings et

al., 2016; Shah et al., 2016; Hochman et al., 2019). Hochman et al. (2019) found that primary care appointment compliance was 60% in a population that received scripted nurse-directed follow-up reminder phone calls post-acute care compared to 38.5% for the control group ( $p < 0.004$ ). Shah et al. (2016) demonstrated that a nurse-led phone call seven days prior to an appointment decreased the no-show rate of patients with chronic conditions by 22%.

### **Strength and Grade of the Evidence**

Twenty-one articles were reviewed and presented that supported the EBP interventions within the ACC for this DNP project. The 21 articles were composed of 18 quantitative studies including two systematic reviews, three randomized control trials (RCT), four retrospective study designs, three mix-method study designs, one prospective study design, one quasi experimental study, one cohort study design, one cross-sectional study, and two dissertations, and three qualitative studies.

The Johns Hopkins Nursing Evidence Level and Quality guide (Johns Hopkins, n.d.) was utilized to differentiate between critically appraised evidence and background information and apply a quality level. Three randomized controlled trial (RCT) studies and two systematic reviews were ranked as Level I B (Conway et al., 2019; Gottlieb et al., 2016; Gottlieb et al., 2020; Hochman et al., 2019; Shah et al., 2016). Two sources were evaluated as Level II B or quasi-experimental (Bronstein et al., 2018; Foyabo & Bessetti-Barrett, 2019).

One article ranked as Level III A because the study results were generalizable to the population although a prospective design (Maarsingh et al., 2016). Twelve of the articles were graded as Level III B which consisted of non-experimental studies;

qualitative studies; and qualitative or quantitative studies, with or without meta-analysis (Arpey et al., 2017; Chisolm et al., 2019; Davis et al., 2017; Elliot et al., 2016; Farrell et al., 2015; Jennings et al., 2016; Kim et al., 2015; Komaromy et al., 2018; Naz et al., 2016; Record et al., 2015; Sheridan et al., 2015; Thompson et al., 2015). The final study ranked as a Level VB because of study design and non-research evidence review (Carleton, 2019).

### **Quality and Limitations of the Evidence**

The literature provided data that embodied “reasonably consistent results; sufficient sample size; some control with fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence” (Johns Hopkins, n.d. p. 1).

Generalizability was a limitation in only one study due to insufficient sample size and conduction at a single hospital. Overall, the 18 quantitative and three qualitative studies utilized for this DNP project contributed relevant findings.

Social determinants of health (SDOH) research have increased exponentially in the past five years with a focus to provide SDOH screening for hospital reimbursement and incentives for organizations (Gottlieb et al., 2016; Gottlieb et al., 2020). With greater recognition of the impact of SDOH and emphasis on patient-centered, reasonable cost care, addressing patients’ social needs within a healthcare setting is clearly relevant.

Despite increased attention, research remains scant regarding SDOH screening at the provider level or the impact on engagement in primary care. The inclusion of uninsured or Medicaid insured persons in research is often overlooked due to ethical considerations. Existing literature that included people who were uninsured focused on

community-based interventions or non-experimental studies. Furthermore, data suggested uninsured populations encounter significant barriers in accessing healthcare, perceive discrimination when receiving treatment, and have poor health outcomes for acute and chronic conditions (Komaromy et al., 2018).

With limited research, articles were retained that included pediatric populations since considered “vulnerable” and results demonstrated SDOH screening’s positive effects on engagement in primary with improved health outcomes (Gottlieb et al., 2016; Gottlieb et al., 2020). The exhaustive literature search revealed that patient engagement is reliant on social aspects; however, application of SDOH screening and referral services along with the impact on patient engagement in primary care remains open to interpretation in transitional care settings (Gottlieb et al., 2016; Gottlieb et al., 2020; Komaromy et al., 2018).

Moreover, patient engagement is not easily defined and lends to different perceptions by researchers. Patient engagement has been described as “patient activation with interventions designed to...promote positive patient behavior” (Cricchio, 2020, para 3) or more specifically and concretely as: (a) participation in patient portals, (b) patients actively abiding by provider’s advice, or (c) patient’s actively participating in their own health and wellness (Cricchio, 2020).

Most definitions identified active participation and patient choice with the goal of improved health which aligns with this DNP project (Higgins et al., 2017). Therefore, patient engagement was defined as completion of a primary care appointment within three months following the ACC visit. The period of three months was chosen because

data analysis showed that 95% of patients who completed an ACC visit had a primary care appointment scheduled within three months.

Despite limitations of the literature, no major flaws or inconsistencies were found, and the selected studies contributed reasonably consistent results with some control over confounding variables and bias. Gaps highlighted the need for additional research related to SDOH screening and transitional care's impact on patient engagement. This DNP project contributes to the translation of current research into practice, as the literature supported use of specific EBP interventions of intra-appointment social determinants of health (SDOH) screening and post-appointment nurse-directed reminder phone calls for uninsured and Medicaid insured populations seen in the ACC as reasonable and financially prudent (Arpey et al., 2017; Carleton, 2019; Foyabo & Bessetti-Barrett, 2019; Gottlieb et al., 2016; Gottlieb et al., 2020; Jennings et al., 2016; Komaromy et al., 2018; Record et al., 2015; Naz et al., 2016; Shah et al., 2016; Thompson et al., 2015).

### **Conceptual Framework and EBP Model**

#### **Integrated People-centered Health Services**

Without coordination of care, all patients can experience poorly integrated and managed care resulting in suboptimal health outcomes and increased risk of harm due to communication failure, inadequate clinical information, poor medication reconciliation, duplication of services and avoidable hospital admissions or readmissions (WHO, 2018). Poor outcomes are particularly evident for people of low-socioeconomic status with health problems that require ongoing and complex care regimens; therefore, care coordination is even more critical to assist people in need of primary care.

The Integrated, People Centered Health (IPCH) framework aligns with the ideas, interventions, and purpose of this DNP project. The framework proposes five interdependent strategies for health services to become more integrated and people centered including coordinating services within and across sectors and reorienting the model of care (WHO, 2018). The specific strategies strive to provide affordable and quality health services as well as ensuring access to healthcare despite differences in ethnicity, socioeconomic status, gender, or social condition (WHO, 2018).

In addition, the IPCH framework works to strengthen primary care services that emphasize health promotion, disease prevention, and rehabilitation (WHO, 2018). Improving access to primary care through care coordination is directly related to this DNP project along with identifying and reducing barriers for patients.

### **Iowa Model of Evidence-Based Practice**

Implementing SDOH screening and post-appointment nurse-directed reminder phone calls for the ACC population was supported by the established, interdisciplinary practice delivery team. Thus, the Iowa Model of Evidence-Based Practice to Promote Quality Care was chosen as the implementation model for this DNP project. The Iowa Model provides guidance for nurses and other clinicians when making decisions about clinical and administrative practices that affect patient outcomes.

The model encourages health care providers to identify problem-focused triggers that highlight opportunity for improvement in current practice, such as low rates of patient engagement in primary care following ACC visits. After reviewing, critiquing, and synthesizing the current literature, interventions are selected and piloted to determine their feasibility and effectiveness. Piloting is an essential step of the Iowa Model, as it

allows the organization to determine whether adopting the practice change is supported or if modifications are needed.

The Director of the ACC has been a guiding member of the DNP project committee and supportive of implementing EBP interventions to positively impact patient engagement in primary care. Once organizational commitment was obtained to address patient engagement in primary care, a team consisting of pharmacists, nurses, advanced practice nurses, and social workers was formed in June 2019. The selected EBP interventions were reviewed by the ACC team and determined to be appropriate for adoption into clinical practice. The ACC interdisciplinary team was essential to the DNP project to provide a consistent bundled care approach and to identify and minimize barriers before and during implementation.

### **DNP Project Design**

#### **Methodology**

The purpose of this DNP project was to implement EBP using the IOWA Model's team approach to coordinate care for people with social needs that lead to low patient engagement in primary care. The EBP interventions of intra-appointment SDOH screening and post-appointment nurse-directed reminder phone calls were implemented from August 2020 through October 2020 within the ACC's workflow. The EBP interventions were used to enhance the interdisciplinary bundle care approach and support transition of patients from post-acute care into primary care.

#### **Setting**

This DNP project was implemented at an inner-city ACC serving patients referred from the affiliated health system's ED or inpatient services. The ACC provides safe and

efficient transitional care to over 7,000 patients annually with most uninsured or under-insured. The ACC is a key resource for patients referred post-acute care to provide short-term follow-up and a bridge to appropriate primary care through preventing potential readmission rates that can be over 30% among the adult Medicaid population (Dowd-Green et al., 2017; Hochman et al., 2019; Mena-Carrasco et al., 2016)

ACC services are interdisciplinary and include evaluation and treatment by physicians and advanced nurse practitioners (NP) and additional services. These services include nurses and pharmacists to provide patient education, social workers and case managers to provide resources, home care or home-based services, transition guides, and care coordination.

### **Participants and Selection**

Convenience sampling was used for this DNP project and eligible participants were patients (a) under 40 years of age, (b) referred post-acute care, (c) uninsured or Medicaid insured, and (d) not established with primary care. To focus EBP interventions on the identified at-risk population subset, patients were excluded from participation who were older than 40 years of age, had acute or emergent needs prior to their ACC visit, became deceased, or had an established primary care provider. Non-English-speaking patients were eligible as translation services were available via telephone or video conference. Based upon review of the ACC data, sample size was projected to include 40 participants per month or 120 participants during the three-month implementation period; although, the project was not capped regarding the number of participants.

**Strategies to Protect Participants**

An application for the DNP project was submitted to Salisbury University's Institutional Review Board (IRB) on April 27, 2020 and approved on May 27, 2020 (Appendix C). On June 26, 2020, an IRB Amendment Form was submitted that described methodology changes to this DNP Project due to the impact of the coronavirus (COVID-19) pandemic to include SDOH screening using telemedicine procedures for patients. On July 1, 2020, the Amendment was approved by Salisbury University IRB (Appendix C).

The DNP student investigator was added to the ACC's existing IRB which was acknowledged as non-humans subject research and quality improvement with exempt status until July 16, 2021. The Collaborative Institutional Training Initiative (CITI) program on research ethics and compliance to protect the integrity of the project and human subjects' rights was completed with expiration January 24, 2023 (Appendix D).

No specific informed consent was required because interventions were integrated into standard care for ACC visits and the DNP project is considered quality improvement through EBP implementation and not human subject research. Potential participants were able to opt out of the project through refusal to (a) complete SDOH screening, (b) accept ACC referral to affiliated primary care, or (c) provide adequate contact information.

Appointments and contact information for patients were secured on the electronic health record (EHR) called Epic with access through a password protected portal. Any EHR information reviewed off-site occurred through the Secure Analytic Framework Environment (SAFE), a virtual desktop program that provides organizational investigators a secure environment to analyze and share sensitive data (Safe Desktop, n.d.). Access to the SAFE desktop was approved by the health system on May 23, 2019.

During project implementation from August 2020 through October 2020, participant's data were placed within an excel spreadsheet located within the SAFE desktop system.

The ACC staff and DNP project investigator had no prior professional relationships with the participants. Information regarding SDOH screening and primary care appointments was attached within Epic Secure Chat for data collection. Secure Chat was developed in June 2020 during the COVID-19 pandemic and allowed caregivers to send protected health information through secured text messages in real-time from a computer or mobile device. Secure Chat enhanced quality and speed of communication about patients. The ACC nurse and DNP student investigator were the only providers with access to messages regarding project participants, and these messages were maintained through the project implementation period then deleted.

The DNP project presented only minor risk to participants since no invasive procedures were utilized and all participants received standard care. Healthcare providers recognized that participants may feel embarrassed, anxious, or overwhelmed answering personal questions during SDOH screening (Gottlieb et al., 2016; Gottlieb et al., 2020). In addition, patients who were undocumented and uninsured may have fears of deportation or prejudice if revealed. To mitigate these risks, patients were informed during SDOH screening that participation was voluntary; and although screening was beneficial, they could stop the assessment at any time or skip a question if uncomfortable.

Potential benefits to participants included identifying SDOH barriers to care, receiving available resources to reduce barriers, and establishing needed primary care. Participation in the DNP project could yield results regarding benefits of identifying and implementing EBP strategies that provide patient-centered, individualized care to

increase patient engagement in primary care that will improve the overall health of high-risk populations (Elliot et al., 2016; Gottlieb et al., 2016; Gottlieb et al., 2020; Kim et al., 2015; Komaromy et al., 2018).

### **Organizational System**

The regional health system that provides the ACC implemented a current strategic plan for 2019-2023 that emphasized innovation to guide business strategies and decisions. The plan relates to both inpatient and outpatient services and focuses on increased access, quality, continuity, and affordability of care. In addition, the plan aims to improve community health through engagement efforts to meet local health needs.

### **SWOT Analysis**

To evaluate the regional health system, a SWOT analysis was conducted to identify internal strengths and weaknesses (SW) along with external opportunities and threats (OT) for the DNP project (Appendix E). Intrinsic strengths can positively influence, whereas weaknesses can disrupt the project outcomes. External opportunities provide additional support, but threats may potentially harm the project, and if not addressed, could have "catastrophic effect" on implementation. (Moran et al., 2017, p 124). The SWOT analysis provided information that assisted the DNP student investigator to capitalize on strengths and opportunities as well as minimize weaknesses and threats to the project.

### ***Strengths***

The established ACC is an affiliate of a large, academic tertiary hospital within a regional health system that is convenient for most patients and well established within the community to provide care coordination during transitions within the healthcare

continuum. The ACC treats and transition patients from acute care to primary care and a patient-centered medical home. In addition, the ACC supports at-risk populations to prevent non-urgent ED visits or readmissions for conditions that could be managed within a primary care setting. Through an interdisciplinary team approach in ACC, patients are provided key resources to improve or maintain their health.

The ACC offers several cost-savings benefits to the health system by improving patients' ability to self-manage their conditions and through demonstrated reduction of ED visits and hospital admissions. The readmission rate for the population before ACC's opening in 2015 was 3.7 percent which decreased to 1.1 percent within two years (Johns Hopkins Medicine, 2017). In addition, the ACC deferred over 296 ED visits and 61 admissions saving the health system an estimated \$3,020,416 during a three-year period. (Johns Hopkins Medicine, 2017).

A Quality-based reimbursement initiative in 2009 and a global budget revenue system in 2014 has allowed the ACC to focus on quality, efficiency, and care coordination for the high-risk population. A payer model negotiated a single payment rate for each service within the system to eliminate rate variation, include uncompensated or charity care, and improve access to care (Anderson & Herring, 2015).

The EHR, Epic, is integrated throughout the entire health system including the ACC. A well-implemented, high-functioning EHR can ultimately lead to better patient care, improved efficiency, and better patient information management (HealthIT, 2019). EHR integration enabled access to patient records for more coordinated, efficient care and secure sharing with patients and healthcare professionals.

### *Weaknesses*

Although many patients seen in the ACC have chronic conditions, only 59 percent engaged in primary care following their visit and referral. Transition from acute to outpatient care can cause confusion regarding treatment plans, duplicative testing, discrepancy in medications, and missed follow-up, ultimately leading to fragmented care and patient dissatisfaction (Mansukhan et al., 2015). Fortunately, the ACC was part of the referring health system and has established primary care providers that expedited care transition.

To assess patient engagement in primary care, participants in the DNP project were limited to ACC referrals to primary care providers within the health system. This criterion excluded patients referred to primary care external to the health system. Exclusion limited the sample size and could impact overall patient engagement results; therefore, will be considered during the DNP project analysis and review.

### *Opportunities*

Transitional care clinics such as the ACC help achieve the triple aim of improving care, improving health, and saving health care costs. The population served consistently have barriers to accessing healthcare and poor health outcomes due to limited engagement (Arpey et al., 2017; Bronstein et al., 2018; Carleton, 2019; Davis et al., 2017; Foyabo & Bronstein, 2019; Shah et al., 2016). Utilization of a network called the Aunt Bertha System that assists with integration of social care and accessible coordination of services for patients was already established in EHR (The Social Care Network, 2020). Data analysis confirmed the need for the ACC to continue its focus on

improving care coordination post-discharge until primary care engagement that should continue to positively impact healthcare costs and patients' health outcomes.

### ***Threats***

The community utilizing the ACC contains a population with low socioeconomic status and high poverty. According to County Health Rankings (2019), the population ranked last for overall health and patients continue to fail to engage in primary care. Additionally, a strong link between readmission rates and low socioeconomic status exists that could put the health system at risk for the Center for Medicare and Medicaid Services' Hospital Readmissions Reduction Program (HRRP) penalties that cost safety net hospitals millions of dollars each year (Aprey et al., 2017; Carleton, 2019; Chisolm et al., 2019; Gottlieb et al., 2016; Gottlieb et al., 2020; Mansukhan et al., 2015).

The ACC provides a setting where patients can be assessed, treated, and transitioned from acute to primary care. If patients already have established primary care then utilization of transitional care may be unnecessary; however, the ACC can screen these patients for barriers to care, provide interim evaluations, treat acute complications, and connect patients to resources to continue recommended healthcare.

## **Project Implementation**

### **Proposed Timeline**

After IRB approval was obtained and following the Iowa Model, the ACC interdisciplinary team was briefed via an educational PowerPoint (Appendix F) regarding project outcomes, procedures, and expectations. This educational session allowed for team-based discussions surrounding implementation efforts. In July 2020, the ACC staff were informed prior to implementation to review the practice changes. The ACC nurse,

who was specifically impacted, was also informed of project implementation in consideration of changes due to COVID-19 that included telemedicine and secure messaging.

Project implementation occurred from August 2020 through October 2020. Data collection and analysis was performed December 2020 through January 2021. The dates provided sufficient time to complete the project, thereby meeting the project timeline (Appendix G).

### **EBP Interventions Implemented**

The EBP interventions of intra-appointment SDOH screening and post-appointment nurse-directed reminder phone calls were implemented within the ACC's appointment workflow. Practice changes impacted registration and intake, intra-appointment nursing patient interaction, interdisciplinary resources, discharge process including primary care referral, and post-appointment follow-up.

### ***Registration Process***

Due to COVID-19, the ACC used both telemedicine and face-to-face visits. Patient volume was unaffected as the ED and inpatient services continued to refer patients. Despite significant changes and mandated COVID-19 precautions that reduced in-person visits and furloughed hours for nursing and ancillary staff, patients went through normal registration and visit protocols including check-in with a Patient Service Coordinator (PSC) and an intake packet. Following check-in, a certified medical assistant (CMA) completed routine intake and used a task identifier dot system within Epic as planned. For example, a green dot identified that the patient was waiting to meet with the nurse for health and social assessment or education.

Telemedicine visits followed a different protocol although the same resources remained available to patients. Two ACC Nurse Practitioners audited records to triage patients for telemedicine appointments. The “dot” system was used and alerted an interdisciplinary team member to connect with the patient to offer resources, guidance, and care. For example, a red dot was placed on the chart for a provider and a blue dot was used if a patient needed to be seen by a nurse. This process allowed for social distancing as required during the COVID-19 pandemic but limited nurse interaction with patients.

### ***SDOH Screening***

Following intake, a nurse met with patients for in-person appointments. During telemedicine visits, the nurse utilized phone call or video chatting. Despite differences in visit method related to COVID-19 procedure changes, every patient was assessed for participation.

If a patient did not meet participant inclusion criteria, then the normal clinic appointment process continued. If the patient met participant criteria, the nurse completed SDOH screening and patient responses were recorded in Epic’s SDOH wheel (Appendix H). The SDOH wheel shows ten domains that represent a factor that can influence health. The domains include financial resource strain, transportation needs, alcohol use, depression, intimate partner violence, social connections, physical activity, tobacco use, stress, and food insecurity. Within EPIC a community resource called Aunt Bertha allowed the interdisciplinary team to search by zip code for services such as food pantries and transportation services site (The Social Care Network, 2020). If the patient was non-English speaking, the nurse used translation services via telephone or video-interpretation to screen.

If a patient screened positive for one or more of the ten SDOH, the nurse provided the resources or consulted an ACC team member to directly address the barriers. For example, a pharmacist could refer patients to specific programs that helped with prescription medication payment or switching medications to lower financial burden. After SDOH screening, the appointment followed the normal clinic process and the patient then saw an ACC provider for care. For project participants, the nurse copied the medical record number (MRN) into Epic Secure Chat.

Overall, the challenges with COVID-19 did not impede the DNP project as implementation remained on track; however, one week the ACC nurse was not present and no back up plan was in place. SDOH screening was incomplete for patients seen in ACC during that week and they were not included as participants.

### ***Primary Care Referral***

At completion of the ACC appointment, the provider charted the plan of care. For primary care referral, the process for scheduling initial appointments was different based on ACC follow-up via telemedicine or in person. Prior to the end of a patient's telemedicine appointment, the provider sent a secure message to the ACC's Patient Service Coordinators (PSC) who scheduled a primary care appointment.

If the patient declined or was unable to be referred to an affiliated primary care provider, they were excluded as a project participant. Following an in-person appointment, the PSC collected and confirmed the patient's personal phone number in Epic to support post-appointment nurse-directed reminder calls. If the patient did not have access to a phone, they provided the number of an emergency contact unless they

refused. If no contact phone number was available for the nurse-led reminder calls, the patient was excluded as a project participant.

### ***Post-Appointment Reminder***

At the end of each week during the project implementation period, the DNP student investigator reviewed each participant's chart via Epic Secure Chat. Personal data, including the patient's MRN, primary care appointment date, SDOH screening results, demographics, and telephone number provided by the patient were collected and placed into an excel spreadsheet located with the SAFE desktop.

The list served as an organizational tool for providing the post-appointment nurse-led reminder phone calls to patients one week before their scheduled primary care appointment. The DNP student investigator also provided two attempts on one day each week to reach participants prior to the scheduled primary care appointment. A professional interpreter was used over the telephone for non-English speaking patients and a script guided the reminder call process and confirmed the patient's upcoming appointment (Appendix I).

### **Barriers and Facilitators**

Many barriers were faced throughout the DNP project implementation period that risked impacting the results, including: (a) scheduling conflicts, (b) Priority partners' cap at affiliated primary care, (c) COVID-19 pandemic, (d) technology, (e) furloughed hours for nursing staff, and (f) ACC nurse absence for one week. Most barriers were not easily fixed during the challenging pandemic but the DNP project activities and interventions were implemented on schedule.

***Scheduling conflicts***

Early in the implementation period, it was found that PSC staff who scheduled the primary care appointments had not completed these routinely. Due to telemedicine procedures and disruption of normal operations, confusion occurred; however, new procedures such as providers sending secure messages directly to PSC staff quickly corrected the issue. Other protocols including the interdisciplinary approach where providers, nursing, and ancillary staff would directly reach out to patients assisted scheduling and captured information in the EHR.

***Priority partners' cap***

The most prominent barrier during the implementation was the Priority partners' cap that hindered referral to primary care within the affiliated health system. It also impeded the ability for health information technology to improve communication between ACC and the primary care providers. According to ACC staff, primary care offices were understaffed; and therefore, could not accept new patients. Referral to external primary care providers occurred. Although it is the ACC's intention to provide continuity of care within the health system, establishing a primary care appointment for each patient was identified as the higher priority during this challenging time.

***COVID-19***

The worldwide pandemic made healthcare confusing and stressful for patients and the importance of transitional care clinics was demonstrated to assist patients (Conway et al., 2019). COVID-19 directly impacted completion of patient appointments and normal clinic procedure as patients feared leaving their homes. Healthcare adapted quickly and

with support and direction of the health system, the ACC implemented more telemedicine services.

The pandemic emphasized the importance of caring for patients in a holistic manner, using an integrated approach that considers physical, social, and mental aspects of health. Although expansion of telemedicine aided the ACC as it provided important care in a time of need, it made assessment of the patients' needs more challenging.

Prior to the pandemic, visit procedures allowed the ACC nurse to meet with each patient to assess their overall health condition and social history, (i.e., SDOH screening). With telemedicine, nursing staff could not meet each patient and SDOH screening was not completed for most eligible participants. Telemedicine procedures did not update patient contact information leading to difficulty in reaching patients for nurse-led reminder phone calls.

To further complicate care coordination, ACC staff and patients faced a lack of resources. If a patient had house instability, the interdisciplinary team was hampered to find appropriate shelters since many were designated for COVID-19 patients. Fortunately, the state implemented eviction prevention programs and hotel shelters for residents in the area. Another example impacted resources for transportation needs. Cabs, Uber, Lyft, bus services, and the city train reduced operational hours due to COVID-19. Uber and Lyft could also deny patients transportation if a negative COVID-19 test was not presented or if considered high-risk for contracting the virus (i.e., homeless, living in rehabilitation facility). Referrals that were completed with ease prior to the COVID-19 pandemic became very difficult and demonstrated how the virus disproportionately affected vulnerable and low-socioeconomic persons.

### ***Technology***

As outpatient clinics were required to shift care to phone or video consultation that may not be reimbursable, this presented a barrier for the ACC. Most of the population was low income and lacked technology for effective telemedicine visits. Even though current literature indicated homeless and uninsured people have access to technology such as smartphones (Crane et al, 2020), they did not have internet access. As a result, the ACC risked losing sufficient revenue while integrating telemedicine to maintain operations and needed services. The ACC was challenged with “changing workflows, learning new billing, coding and documentation practices, and implementing platforms for telemedicine, all while facing decisions to cut or furlough staff” as most health systems faced (Gilfillan, 2020, para 4).

### ***Nursing***

Due to COVID-19, patient and staff safety remained top priorities; therefore, communication and participation by the DNP student investigator occurred remotely via Zoom, secure chat, or telephone. In addition, the ACC nurse was not active in all patient visits since many occurred through telemedicine protocols which limited SDOH screening.

With the spread of COVID-19, health systems and interprofessional teams changed drastically and continue to be challenged to deliver effective care (Cohn & Price, 2020). Many organizations and the health system for the ACC informed frontline medical and nursing staff about pay and benefit reductions (Cohn & Price, 2020). These changes reduced nursing staff hours and decreased SDOH screening. Nurse-led interventions were key to this DNP project and evidence emphasized the role of the nurse

during transition of care to increase primary care engagement for Medicaid and uninsured patients (Conway et al., 2017).

### ***Interdisciplinary Team***

The ACC team of highly skilled and knowledgeable individuals from multiple professions was important for success of this DNP project. Having resources such as behavioral health, case management, and pharmacy in one location facilitated multiple interventions in one ACC visit for in-person visits. As telemedicine became the more prominent visit method, it impaired the ease of multiple healthcare professionals to be involved.

Other disciplines such as pharmacy and social work were also subject to furloughs that directly impacted their clinic time. When the interdisciplinary team's time and physical presence was reduced, it delayed outreach to the patient. To address this issue, the EHR message system was utilized and helped connect the team to patients in need.

Although remote access and telemedicine can increase overall participation with healthcare service, some disadvantages to telemedicine existed for this population. This experience emphasized how proper communication and collaborative skills were needed to provide quality care.

### **Summative Evaluation of Implementation Process**

This EBP implementation project utilized DNP essentials including “advanced knowledge of disease process, health policy, ethics, scholarship, scientific writing, and executive leadership in the healthcare delivery system” (AACN), 2006; Giardino & Hickey, 2020, p. 1) to initiate process changes in a complex healthcare system. From an organizational perspective, the advanced practice registered nurse (APRN) role is one

that involves not only providing direct patient care but also fostering skills that are conducive to EBP for clinical problem solving (Sherrod & Goda, 2016). The AACN (2006) stated that demonstrating skills in EBP translation is consistent with health care related goals to eliminate health disparities and promote patient safety and excellence in practice.

In today's health systems, the DNP implements EBP that improves the health of the population through health equity. Providers, including Nurse Practitioners and nurses at the ACC, are well positioned to mitigate the effects of SDOH by understanding each patient's challenges and providing coping strategies and community resources (AAFP, 2015).

Despite barriers faced during this implementation, the DNP project was implemented in its entirety, within the project timeline, and yielded a larger sample size than expected. This project will shed light on current challenges faced by health care to assist high-risk populations to obtain primary care.

Although the COVID-19 pandemic was a prominent factor impacting healthcare delivery, this crisis brought forth opportunity. Health systems reevaluated practice during the pandemic to learn from their policies and behaviors. Implementation of the EBP interventions for this DNP project demonstrated that if any positive consequence of the pandemic was possible, it was the adaptability of the ACC while continuing its patient-centered model of care to serve the community.

### **Data Analysis**

The primary purpose of this DNP project was to assess whether patient engagement defined as attending a primary care appointment within three months

following the ACC visit increased after EBP interventions were provided. From December 2020 through January 2021, the DNP student investigator reviewed Epic Secure Chat for participants. If a patient met eligibility, the MRN was typed into the Epic “patient chart search” tab to collect patient information for future data analysis, including (a) ACC visit, (b) SDOH screening, (c) SDOH-related services (e.g., pharmacy or social work), (d) nurse-directed reminder phone calls, and (e) completion of scheduled primary care appointments (i.e., engagement). Patients listed as either “No Show” or “Canceled” in Epic for their primary care appointments and with no reschedule dates were considered not engaged. Secondary data was collected from Epic and included patients’ primary diagnosis, age, race/ethnicity, and payor status.

All data was recorded using the health system’s Qualtrics account and transferred into an Excel spreadsheet protected in the SAFE desktop. Descriptive statistics were determined using mean ( $\pm$ SD) and proportions for each population. Secondary data such as patient primary diagnoses, age, race, and ethnicity as well as insurance and method of appointment were analyzed to assess their potential effects on patient engagement. Pearson's chi-squared test was used to determine whether a relationship occurred between the EBP interventions and engagement in primary care. The SPSS statistical software generated comparative analysis and generated an Excel worksheet of participants identified by their MRN only.

The DNP student investigator and the ACC research assistant had access to the Excel worksheet for data analysis. The database housing the Excel worksheet remained accessible to the ACC research assistant and was password protected on the SAFE desktop.

## Discussion of Findings

### Characteristics of Participants

A total of 198 patients met the participant inclusion criteria and demographic characteristics are presented in Table 1. Participants' mean age was 30 years, 57.6% were male, 53.5% African American and 17.2% Hispanic/Latino. Regarding insurance, 57% had Medicaid and 42.9% were uninsured. Due to the COVID-19 pandemic, 54.5% of patient appointments were completed via telemedicine which was a significant change in process for the ACC.

**Table 1. Demographics**

Age	30.01
Gender	
Male	42.4%
Female	57.6%
Race	
White	23.8%
African American	53.5%
Other	22.7%
Ethnicity	
Hispanic/Latino(a)	17.2%
Non-Hispanic/Latino(a)	82.8%
Insurance	
Medicaid	57%
Uninsured	42.9%
Appt Method	
Telemedicine	54.5%
In-person	45.5%

Table 1. Characteristics of Participants (August-October 2020).

The most common discharge diagnoses of participants included acute and chronic conditions with the top four identified as substance abuse (8.6%), COVID-19 (4.1%), Diabetes (3.8%), and abdominal pain (3.1%) (Table 2). These diagnoses showcase the socio-demographics in the area surrounding the hospital, specifically the patients referred to the ACC. The neighborhoods are predominantly black, reflecting the poverty and economic segregation that account for the apparent differences between the city's black and white populations in key economic outcomes like health, education, employment, and poverty.

**Table 2. Diagnosis**

	Frequency	Valid Percent
Abdominal pain	8	3.1%
Abscess	4	1.5%
Asthma	5	1.9%
Back pain	6	2.3%
COVID-19	11	4.1%
Diabetes	10	3.8%
Gun Shot Wound	6	2.3%
Headache	6	2.3%
Knee pain	5	1.9%
Substance abuse	23	8.6%
Other Diseases	114	68.2%
Total	198	100.0

Table 2. Top ten diseases processes of participants (August-October 2020)

### **Referrals to Primary Care**

Following their ACC visit, participants were scheduled with primary care. If a primary care appointment was not made at discharge, an ACC interdisciplinary team member would contact the patient within the week to schedule. To track engagement of

the population in primary care, the project process included review of participants referred to affiliated primary care. Only 31 patients, or 15.7%, were referred within the health system with 84.3% of eligible participants referred to external primary care. Since the DNP project’s processes assessed engagement in primary care within the health system, the project population was reduced significantly from 198 to 31 participants.

Referrals made within the health system and to external primary care are presented in Table 3 and Table 4. Regarding external referrals, 105 participants (53%), were scheduled with federally qualified health care (FQHC) centers in the surrounding area. Of the 198 eligible participants, 31 (15.7%) were not referred to primary care. Because these 136 participants were unable to be tracked within the EHR for appointment completion or patient engagement, they were initially excluded.

The remaining 62 participants (31.3%) were neither referred within or external to the health system because (a) no contact despite multiple attempts, (b) patient refused primary care services, or (c) patient had a primary care provider.

**Table 3. Referred within Health System**

		Frequency	Valid Percent
Valid	Not Referred	167	84.3%
	Referred	31	15.7%
	Total	198	100.0%

Table 3. Referral of participants to affiliated primary care.

**Table 4. Referred to External Provider**

		Frequency	Valid Percent
Valid	Not Referred	31	15.7%
	Referred	105	53.0%
	Other	62	31.3%
	Total	198	100.0%

Table 4. Referral of participants to external primary care.

## EBP Interventions

### *Intra-Appointment SDOH screening*

Due to COVID-19 and increased use of telemedicine, nursing staff were unable to participate in every patient's visit. Telemedicine consisted mainly of speaking via phone with one healthcare provider which reduced SDOH screening. Ninety-seven percent ( $n=193$ ) of eligible participants had incomplete SDOH screening or lacked documentation within the EHR. Only five participants (2.5%) received complete SDOH screening with EHR documentation (Table 5). Because the incompleteness rate was very high, further review assessed if "partial screening", defined as three domains of SDOH, was completed. Analysis revealed that 183 participants (92.4%) received partial SDOH screening. A decision was made, with input from the ACC Director and Research assistant, that participants with partial SDOH screening who received a reminder phone call and completed their primary care appointment were determined to be engaged. This did not include appointments external to the system.

**Table 5. SDOH Screening**

		Frequency	Percent
<b>SDOH Complete</b>	Not complete	193	97.5
	Complete	5	2.5
	<b>Total</b>	198	100
<b>Partial Completion</b>	Not complete	15	7.6
	Complete	183	92.4
	<b>Total</b>	198	100

Table 5. Summary of SDOH screening (full and partial), 3-10 domains with EHR documentation.

***Post-Appointment Nurse-led Reminder Phone Calls***

This DNP project procedures included the ACC nurse calling participants one week prior as a reminder for their scheduled primary care appointment. Difficulty in scheduling appointments during the pandemic decreased the time to provide reminder calls to several days prior. An analysis of the population of patients referred (n=31) to the hospital affiliated primary care clinic was also assessed. Of the 31 participants, seventeen had reminder phone calls (55%) for their upcoming appointment (Table 6).

Reasons for inability to contact internally referred participants was due to phone complications (i.e., wrong numbers, lack of voicemail space) did prevent completion of most reminder phone calls.

**Table 6. Nurse-led reminder phone calls**

		Internally referred	Percent
Reminder Phone Calls	Phone call	17	55
	No Phone Call	8	26
	No PCP Appt scheduled	6	19
	Total	31	100.0

Table 6. Adjusted rates of nurse-led reminder phone calls for patients referred and scheduled for JHH primary care.

***EBP Interventions and Patient Engagement***

Data analysis provided participants’ characteristics and completion rates for EBP interventions. The DNP project also aimed to determine the relationship of intra-appointment SDOH screening and post-appointment nurse-led reminder phone calls for participants referred to affiliated primary care since engagement could be assessed.

Engagement for the 31 participants who remained within the health system was analyzed

and 25 had a primary care appointment scheduled (Table 7). Fifteen participants, or 80% of those scheduled for primary care had both intra-appointment SDOH screening and post-appointment nurse-led reminder phone calls with completion of the appointment within three months of their ACC visit thus making them engaged. Four participants, or 20%, did not receive either EBP intervention but completed a primary care appointment.

**Table 7. SDOH + Reminder Phone Calls = Engagement?**

		PCP APPT COMPLETED		
		0	1	
DNP Project Data	Did not have SDOH screening and phone call	Count	3	4
		% within SDOH_PhoneCall	1.9%	2.5%
		% within PCP APPT COMPLETED	60.0%	20.0%
	Had SDOH screening and phone call	Count	2	15
		% within SDOH_PhoneCall	5.1%	41.0%
		% within PCP APPT COMPLETED	40.0%	80.0%
Total	Count	5	20	
	% within SDOH_PhoneCall	2.5%	10.1%	
	% within PCP APPT COMPLETED	100.0%	100.0%	

Table 8. Highlights EBP interventions impact on engagement levels. PCP=Primary Care Provider

Further analysis was conducted using Pearson's Chi-squared test to determine if a relationship between the EBP interventions and engagement in primary care was demonstrated. Analysis supported that participants who received both intra-appointment SDOH screening and post-appointment reminder phone calls were more likely to be engaged in primary care ( $p = .000$ ). Findings did not support that a specific SDOH

affected levels of patient engagement. Although data did not reveal which social intervention assisted engagement, the interventions combined yielded data beneficial to the ACC’s clinical practice (Table 8).

**Table 8. Chi-Square Test**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	53.532 <sup>a</sup>	2	.000
Likelihood Ratio	41.829	2	.000
Linear-by-Linear Association	49.112	1	.000
N of Valid Cases	198		<i>P</i> < 0.05

Table 8. Assessment of relationship between EBP interventions and engagement levels

**Results Overview**

This DNP project demonstrated that the transition period following discharge from acute care is a particularly vulnerable time for high-risk patients. Hochman et al. (2019) reported that over 20% of discharged Medicaid patients are readmitted within 30 days with a higher rate for those uninsured. Therefore, implementing EBP that enhances transitional care efforts are important and support current practice models.

Care coordination involving an interdisciplinary team to meet patients’ needs using SDOH screening and phone call reminders can improve follow-up and engagement in primary care for this population. Transitional care clinics can implement these interventions to improve access to needed primary care. Although more research is recommended, understanding how to implement current EPB that targets at-risk patients particularly burdened by SDOH is essential to improve healthcare outcomes.

### **Economic Considerations**

Recognition of the significance of SDOH on health outcomes provides information regarding economic considerations. Horwicz et al. (2020) found that health system investments in SDOH approximated \$2.5 billion during the past two years and focused on developing screening and referral programs. The Deloitte Center for Health Solutions conducted a national survey of 300 hospitals and health systems to identify current policies surrounding SDOH and found that almost 40 percent had no current capabilities to measure the outcomes (Deloitte, 2017). However, the health systems reported that screening demonstrated improved health and cost outcomes as well as improved patient experience (Deloitte, 2017).

SDOH are responsible for 40 percent of a patient's health with missed appointments costing healthcare \$150 billion annually (Horwicz et al., 2020). Most cost-benefit studies regarding SDOH do not capture the health effects (WHO, 2019); therefore, inclusion of analysis for this DNP project that found a positive effect of SDOH on participant engagement (i.e., visits) in primary care when coupled with reminder phone calls supports investment in these EBP interventions. Establishing a standardized SDOH screening procedure at the ACC would assist in meeting the overarching goals of reducing barriers to care and increasing patient engagement.

### **Implications for Practice and the DNP**

Recognition of the influence of SDOH on health outcomes is growing and healthcare providers are attempting to develop strategies to reduce patient barriers to care. As healthcare continues to focus on value-based and patient-centered healthcare,

more research regarding SDOH and how to use them to improve patient care should occur (Thomas-Henkel & Schulman, 2017).

Findings of this DNP project are significant for the field of advanced nursing practice to improve access to healthcare for patients burdened with SDOH barriers who will continue to incur poor health outcomes if not addressed. The role of nurses in care coordination and follow-up cannot be overemphasized for successful practice change. Advanced practice nurses such as the DNP and APRN can address healthcare delivery processes and promote practice change through implementation of EBP and involvement of interdisciplinary teams to address the needs of high-risk populations.

### **Process and Outcome Recommendations**

The participant population for this DNP project was reduced significantly for many reasons yet the EBP interventions positively impacted patient engagement in primary care. As COVID-19 impacted procedures, staffing, and referrals, the health system and transitional care clinic adapted to meet complex patient needs. The pandemic created extraordinary disruptions in healthcare and provided opportunity for creativity and utilization of healthcare technology to ensure continuity of care. Through continued development of processes that address physical health in the post-discharge period as well as social resources for patients, the health system can promote transition and engagement in primary care.

Research has revealed a correlation between neighborhoods and health, with zip codes as a stronger predictor of a person's health than their genetic code (Artiga & Hinton, 2018). The target population ranked the lowest in social, racial and health

disparities within the state; therefore, transitional care can identify EBP to reduce barriers and improve care coordination.

As the population grows older and experiences greater risk for poor health outcomes, an urgent need to coordinate services across the health continuum exists (Artiga & Hinton, 2018). Connecting and integrating social supports and services in healthcare is essential to address social aspects that impact the overall well-being, particularly of at-risk patients (Artiga & Hinton, 2018). EBP recommendations regarding SDOH remain an evolving area but with continued efforts to promote and review research, advanced practice nurses such can assist healthcare to adopt recommendations that improve population health.

### **Dissemination**

A final DNP project paper overviewing the EBP process, implementation, data analysis, conclusions and recommendations was composed. A formal presentation in April 2021 disseminated information to the DNP Project Committee members, Salisbury University's faculty and Graduate Program Chair, peers, and invited guests of the ACC and health system. Findings will be submitted to a peer-reviewed journal for potential publishing to inform healthcare professionals regarding the value of implementing EBP to address SDOH and health outcomes as well as the challenges related to increasing engagement in primary care for high-risk populations.

Data from this project may also be submitted as an abstract for poster or podium presentations at regional, national, or international meetings as effective means to disseminate findings of clinical relevance, to meet people with similar research interests, and to establish one's area of expertise. Dissemination will aim to target an audience of

healthcare professionals dedicated to positively affecting health outcomes through efforts to increase engagement of vulnerable populations into primary care.

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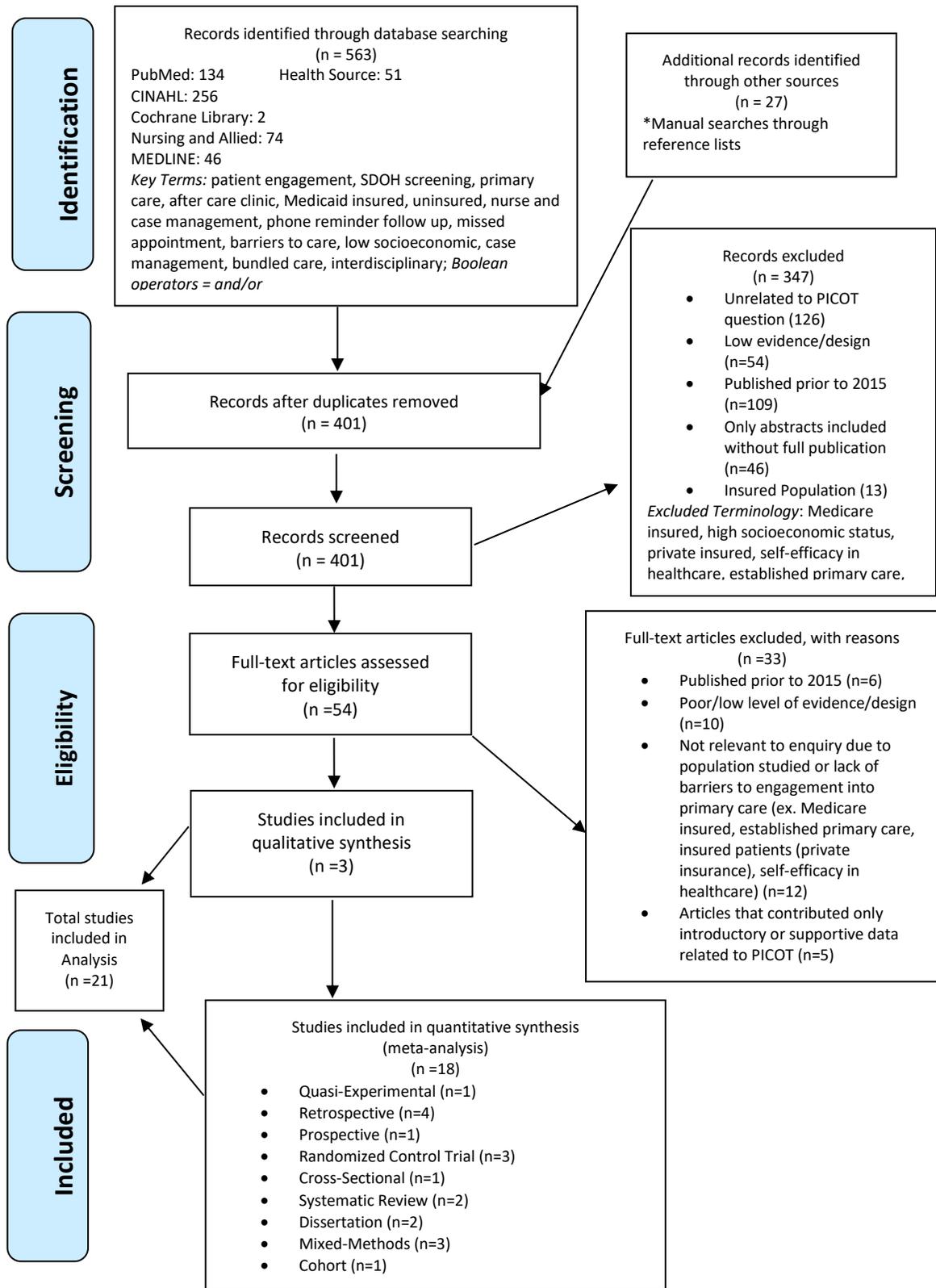
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Appendices

**Appendix A: Prisma Diagram**



**Appendix B: Table of Evidence**

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
Arpey, N. C., Gaglioti, A. H., & Rosenbaum, M. E. (2017). How socioeconomic status affects patient perceptions of health care: a qualitative study. <i>Journal of primary care &amp; community health</i> , 8(3), 169-175.	To determine if low SES patients perceive clinician bias might affect their health care	Qualitative  DV: N/A, no manipulation of variables  IV: N/A	n=80  Setting: University of Iowa Hospital and Clinics  Data collected between 2 different 3-month periods in 2013 and 2014.	SES did affect their health care experiences by treatment provided, access to care, and provider interactions	Level III B	Emphasizes advancing health equity for low SES patients will require a multifaceted approach that targets both providers and the health care system as a whole.  <i>Limitations:</i> <ul style="list-style-type: none"> <li>• Lack of generalizability</li> <li>• Recall bias</li> </ul>
Bronstein, J., Sen, B., Morrissey, M., Blackburn, J., Kilgore, M., Engler, S., & Smith, W. (2018). Assessing the impact of case management on Medicaid clients with chronic diseases. <i>Social Work in Public Health</i> , 33(4), 215-225	Estimate how and if case management affects Medicaid spending on health care per month	Quasi-Experimental  DV: care expenditures for Medicaid enrollees with various chronic disease  IV: Case Management initiation	n=3, 200  Setting: Alabama Department of Public Health (ADPH)'s case management  Between late 2011 and 2014	Case - management present in health care resulted in program savings (DD: \$203.40, t statistic: 6.34) $\alpha = .05$  Expected savings per case-managed patient are \$183.16 dollars per enrolled month	Level II B	Case management in Medicaid programs may help bend the cost curve for patients with chronic conditions.  <i>Limitations:</i> <ul style="list-style-type: none"> <li>• No direct measure of health status and quality of life</li> <li>• Unable to account for frequency of contact</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Carleton, D. C. (2019). Increasing uninsured patients' compliance with return primary care visits. [Doctoral Dissertation]. <a href="https://scholarworks.waldenu.edu/dissertations/6537/">https://scholarworks.waldenu.edu/dissertations/6537/</a></p>	<p>To identify methods that would improve patient compliance with their prescribed follow-up care to improve patient outcomes</p>	<p>Doctoral Dissertation</p>	<p>N/A</p>	<p>Care transition and coordination services for the uninsured increases return rates and appointment compliance</p>	<p>Level V B</p>	<p>Identified the barriers and motivating factors for chronic care return primary care visits among uninsured patients.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Low level references</li> <li>• No direct testing or piloting of recommended interventions</li> </ul>
<p>Chisolm, D. J., Brook, D. L., Applegate, M. S., &amp; Kelleher, K. J. (2019). Social determinants of health priorities of state Medicaid programs. <i>BMC health services research</i>, 19(1), 167.</p>	<p>Explore state's current approaches to SDOH</p>	<p>Mixed-Methods DV: Healthcare costs and outcomes for low-income populations</p> <p>IV: influence of social determinants of health (SDH)</p>	<p>n=42</p> <p>Medicaid Medical Director Network (MMDN)</p> <p>November 2017</p>	<p>Many State Medicaid programs use SDH data currently or plan to in the near future as a strategy to address the social drivers of health care expenditures</p>	<p>Level III B</p>	<p>Addressing SDOH improves health, health equity, and costs for the Medicaid population but challenges for sustainable implementation remain.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Lack of generalizability</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Conway, A., O'Donnell, C., &amp; Yates, P. (2019). The effectiveness of the nurse care coordinator role on patient-reported and health service outcomes: A systematic review. <i>Evaluation &amp; the health professions</i>, 42(3), 263-296.</p>	<p>To examine the impact of the CC role and its various components on patient outcomes, and service delivery, from the perspective of patients, clinicians, and those working in the role</p>	<p>Systematic Review  DV: patient outcomes, and service delivery, from the perspective of patients, clinicians, and those working in the role.  IV: CC role within the health system</p>	<p>n=45  Setting: N/A  Sample: Articles published in English from January 1, 1990, to November 2015.</p>	<p>Nurse care coordinator role improves survival over a 6-year follow-up period.</p>	<p>Level II B</p>	<p>Nurse CC roles improve patient and health service outcomes.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Selection Bias</li> <li>• Lack of standardized definitions of nursing role</li> <li>• Meta-analysis not preformed</li> </ul>
<p>Davis, A., Baldwin, A., Hingorani, M., Dwyer, A., &amp; Flanagan, D. (2017). A review of 145,234 ophthalmic patient episodes lost to follow-up. <i>Eye</i>, 31(3), 422.10.1038/eye.2016.225</p>	<p>Determine whether patients lost to follow-up had come to harm and develop investigation techniques to optimize safety.</p>	<p>Retrospective  DV: Harm to patient  IV: LTFU</p>	<p>n=145,234  January 2007 and 30 November 2012  Setting: Moorfields Eye Hospital London, England</p>	<p>54.8% of reasons lost to follow up were due to incomplete planning in the discharge process.  Risk from delays or lost to follow-up care continue and require better capacity and more accurate</p>	<p>Level III B</p>	<p>Identifying factors to prevent patients lost to follow up is important for management of chronic disease and for services with a high proportion of vulnerable patients.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Could not determine cause and effect relationship</li> <li>• No randomization</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Elliott, K., Klein, J. W., Basu, A., &amp; Sabbatini, A. K. (2016). Transitional care clinics for Follow up and primary care linkage for patients discharged from the ED. <i>The American journal of emergency medicine</i>, 34(7), 1230-1235.</p>	<p>Assessed factors associated with completion of TCC follow-up among these patients and characterized their subsequent ED use.</p>	<p>Retrospective</p> <p><i>Primary end points:</i> Assessed the patient and clinic-level characteristics associated with completion of follow-up among patients referred to the ACC at time of ED discharge.</p> <p><i>Secondary End Points:</i> ED utilization in the year after ACC referral among patients who completed their appointment vs those who did not</p>	<p>n=2,438</p> <p>Sample: All patients who received a referral to the ACC at time of ED discharge within the 12-month period</p> <p>Setting: Harborview Medical Center (Seattle, WA)</p> <p>September 2013 to August 2014</p>	<p>Transitional care clinics represent a solution for improving access to follow-up care and reducing unnecessary ED visits</p> <p>Patients who were homeless (OR, 0.42) had a substance use history (OR, 0.68) and those with more baseline ED visits were significantly less likely to complete follow-up</p>	<p>Level III B</p>	<p>TCC may serve to bridge the health care gaps between acute care delivered in the ED and primary care.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Unable to directly assess the utility of the TCC on facilitating primary care linkage.</li> <li>• Cannot control for all confounders.</li> <li>• Small sample</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Farrell, T. W., Tomoia-Cotisel, A., Scammon, D. L., Brunisholz, K., Kim, J., Day, J., Gren, L., Wallace, S., Gunning, K., Tabler, J., &amp; Magill, M. K. (2015). Impact of an integrated transition management program in primary care on hospital readmissions. <i>The Journal for Healthcare Quality (JHQ)</i>, 37(1), 81-92.</p>	<p>Examine whether transitional services from the hospital to the outpatient setting are associated with a lower readmission rates</p>	<p>Retrospective  DV: All - cause 7-, 14-, 30-, 60-, 90-, and 180-day hospital readmission rates  implementation in July 2012  IV: Transitional care services</p>	<p>n=118  Setting: The University of Utah Community Clinics (UCCs)  July 2012 and June 2013</p>	<p>Transitional management programs reduce hospital readmission rates.  There was a statistically significant reduction (p&lt;.05) in hospital readmission rates among adults who received TM services.</p>	<p>Level III B</p>	<p>Findings provide evidence of the effectiveness of care coordination activities integrated within the outpatient primary care setting.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Lack of generalizability</li> <li>• Dataset did not allow for calculation of Charlson comorbidity scores.</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Foyabo, J. (2019). Improving clinic attendance through text message reminders to homeless patients with chronic health conditions. (Doctoral dissertation, Clarion University of Pennsylvania). <a href="https://www.elitecme.com/resource-center/health-information-professionals/improving-clinic-attendance-through-text-message-reminders-to-homeless-patients-with-chronic-health-conditions/">https://www.elitecme.com/resource-center/health-information-professionals/improving-clinic-attendance-through-text-message-reminders-to-homeless-patients-with-chronic-health-conditions/</a></p>	<p>To determine the effectiveness of short message service (SMS) for healthcare appointments to increase clinic follow-up attendance of homeless people</p>	<p>Dissertation using Quasi-Experimental design  DV: compliance with clinic attendance measured as percent of clinic no-shows and overall attendance.  IV: Sending text message reminders</p>	<p>n= 128  Setting: The LACHC clinic is a federally approved clinic for the homeless in the city of Los Angeles.  Jan 2018- Jan 2019</p>	<p>The project resulted in the reduction of no-shows by 6% and an increase in attendance by up to 46%  SMS text reminders significantly increased the follow-up attendance of homeless patients in the outpatient clinic by 46%, p&lt; .000.</p>	<p>Level II B</p>	<p>Communication methods with the homeless can lead to improved health care services and follow up.  Limitations:</p> <ul style="list-style-type: none"> <li>• Did not test reliability or validity of instrument.</li> <li>• Some patients were lost due to confounding issues (incarceration, lost, or stolen phone)</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Gottlieb, L. M., Adler, N. E., Wing, H., Velazquez, D., Keeton, V., Romero, A., ... &amp; Herrera, P. (2020). Effects of In-Person Assistance vs Personalized Written Resources About Social Services on Household Social Risks and Child and Caregiver Health: A Randomized Clinical Trial. <i>JAMA network open</i>, 3(3), e200701-e200701.</p>	<p>Assessed if longitudinal social services navigation assistance and social determinant screening resulted in greater reduction in social risk factors and better health for children and caregivers</p>	<p>Randomized Control Trial</p> <p>DV: Caregiver-reported number of social risk factors and child health 6 months after enrollment.</p> <p>IV: Social risk written information regarding relevant government and community social services resources or in-person assistance</p>	<p>n=611</p> <p>Setting: Pediatric urgent care clinic nested in a large, urban, hospital in San Francisco</p> <p>July 18, 2016, to March 8, 2019.</p>	<p>Caregivers in both groups reported fewer social risks and improved child and caregiver health 6 months after the intervention.</p> <p>The number of reported social risks decreased from baseline to 6-month follow-up in both groups: (both P &lt; .001).</p>	<p>Level I B</p>	<p>Efforts to address social risk factors can improve healthcare. There is an urgent need to identify effective and scalable interventions to address social risks.</p> <p><i>Limitation:</i></p> <ul style="list-style-type: none"> <li>• Self-reported surveys</li> <li>• No generalizability</li> <li>• No treatment control group</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Gottlieb, L. M., Hessler, D., Long, D., Laves, E., Burns, A. R., Amaya, A., ... &amp; Adler, N. E. (2016). Effects of social needs screening and in-person service navigation on child health: a randomized clinical trial. <i>JAMA pediatrics</i>, 170(11), e162521-e162521.</p>	<p>To evaluate the effects of social needs screening and in-person resource navigation services on social needs and child health.</p>	<p>Randomized Control Trial</p> <p>DV: families' reports of social needs, improvement in children's overall health status</p> <p>IV: In-person resource navigation services</p>	<p>n=1809</p> <p>Setting: Zuckerberg San Francisco General Hospital and Trauma Center and University of California, San Francisco, Benioff Children's Hospital Oakland</p> <p>October 13, 2013, and August 27, 2015</p>	<p>Social needs navigator significantly decreased families' reports of social needs and significantly improved children's overall health.</p> <p>At 4 months after enrollment, the number of social needs reported by the intervention arm decreased (<math>P &lt; .001</math>).</p> <p>Caregivers in the intervention arm reported significantly greater improvement in health (<math>P &lt; .001</math>)</p>	<p>Level I B</p>	<p>Social determinants of health shape both children's immediate health and their lifetime risk for disease and these findings support the feasibility and potential effect of addressing social needs.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>Both the low rate of enrollment and study attrition may have resulted in bias.</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Hochman, M., Bourgoin, A., Saluja, S., Balaban, R., Greenwald, J., Palen, T., Savuto, M., &amp; Maxwell, J. (2019). <i>Environmental scan of primary care-based efforts to reduce readmissions</i>. <a href="https://www.ahrq.gov/patientsafety/settings/ambulatory/reduce-readmissions.html">https://www.ahrq.gov/patientsafety/settings/ambulatory/reduce-readmissions.html</a></p>	<p>Provides a summary of different primary care-based strategies aimed at reducing readmissions in different settings.</p>	<p>Environmental Scan  Primary Outcome: Examination of what is currently known about reducing readmissions from the primary care perspective</p>	<p>n=42  The searches were limited to English-language articles published since 2006 through November 2016.</p>	<p>Care transition programs are effective in assisting patients into primary care.  Multi-component interventions that addressed multiple social needs of patients tend to be more effective than individual interventions.</p>	<p>Level II B</p>	<p>Application: Demonstrates the potential of primary care-led interventions to improve care for patients being discharged.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Lack of generalizability</li> <li>• Has the possibility to overlooking important information due to excessive amounts of information gathered by organizations</li> </ul>
<p>Jennings, L., Lee, N., Shore, D., Strohming, N., Allison, B., Conserve, D. F., &amp; Cheskin, L. J. (2016). U.S. minority homeless youth's access to and use of mobile phones: Implications for mHealth intervention design. <i>Journal of Health Communication</i>, 21(7), 725–733.</p>	<p>Examined homeless youth's access to and use of mobile phones in addition to their preferences for mHealth intervention design.</p>	<p>Mixed-Methods  DV: Improved access to health information and services  IV: mHealth interventions among homeless and unstably housed youth</p>	<p>n=52  Setting: Baltimore and Washington, DC  December 2013 through March 2014</p>	<p>Youth reported that mobile phones were most beneficial in obtaining social and health information and support.  Mobile phone access was high (90%), although roughly a third of participants (35%) had lacked money to buy food at least once in the past 3 months.</p>	<p>Level II B</p>	<p>There is a potential for interventions involving mobile phones to reach and engage vulnerable populations, such as homeless, in behaviors that will enhance their health and well-being.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Lack of generalizability</li> <li>• Time consuming</li> <li>• Small sample size</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Kim, T. Y., Mortensen, K., &amp; Eldridge, B. (2015). Linking uninsured patients treated in the emergency department to primary care shows some promise in Maryland. <i>Health Affairs</i>, 34(5), 796-804.</p>	<p>Assess whether the Emergency Department–Primary Care Connect initiative successfully linked low-income uninsured patients to a primary care provider.</p>	<p>Cohort Study Design</p> <p>DV: Reduction of overall subsequent ED visits</p> <p>IV: The Emergency Department–Primary Care Connect initiative that links low-income or uninsured patients with local safety-net primary care providers</p>	<p>n=10,761</p> <p>Setting: Montgomery County, Maryland</p> <p>March 1, 2009, and December 31, 2011.</p>	<p>The initiative linked low-income and uninsured patients with local safety-net primary care providers and provided reduction in subsequent ED visits among the subpopulation</p> <p>Among the 10,761 patients in the sample, 71.3 percent (7,676 patients) did not have a subsequent ED visit.</p>	<p>Level III B</p>	<p>A successful strategy to improve continuity of care for ED patients is to connect underserved patients to primary care settings such as safety net clinics.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• The Primary Care Coalition did not have access to patient records at other safety-net clinics within and outside of Montgomery County, so not all utilization was captured.</li> </ul>
<p>Komaromy, M., Madden, E. F., Zurawski, A., Kalishman, S., Barker, K., O’Sullivan, P., &amp; Arora, S. (2018). Contingent engagement: what we learn from patients with complex health problems and low socioeconomic status. <i>Patient education and counseling</i>, 101(3), 524-531</p>	<p>Elicited Medicaid patients’ perceptions of factors that facilitate their engagement in care</p>	<p>Qualitative</p> <p>DV: Experiences of patients and their close personal contacts</p> <p>IV: Intensive primary care program for low-income patients with multiple diagnoses called ECHO Care</p>	<p>n=20</p> <p>Setting: University of New Mexico</p> <p>Twenty-six patients were selected from two of six ECHO Care clinics, including one urban and one rural site.</p> <p>Jan 2017</p>	<p>Engagement is contingent on healthcare providers’ efforts to develop trust and address patients’ material needs.</p> <p>Unmet needs are addressed, including basics such as food, shelter, and financial security for engagement to be successful.</p>	<p>Level III B</p>	<p>The findings illuminate promotion of patient engagement &amp; offers insights for designing interventions to improve patient outcomes.</p> <p><i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Small sample size</li> <li>• Subject bias</li> <li>• Potential for researcher bias</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Maarsingh, O. R., Henry, Y., van de Ven, P. M., &amp; Deeg, D. J. (2016). Continuity of care in primary care and association with survival in older people: A 17-year prospective cohort study. <i>British Journal of General Practice</i>, 66(649), e531-e539. <a href="https://doi.org/10.3399/bjgp16X686101">https://doi.org/10.3399/bjgp16X686101</a></p>	<p>To investigate whether continuity of care in general practice is associated with better survival in older people.</p>	<p>Prospective <i>DV:</i> Mortality rate <i>IV:</i> Continuity of care (COC) Continuity of care was defined as the duration of the ongoing therapeutic relationship between patient and practitioner.</p>	<p>N=3107 Data were derived from the Longitudinal Aging Study Amsterdam, an ongoing cohort study. 3-year follow-up cycles up to 17 years (1992–2009), and mortality follow-up until 2013.  Setting: Netherlands</p>	<p>Low continuity of care in general practice is associated with a higher risk of mortality  The lowest COC category (index &gt;0–0.500) showed significantly greater mortality than those in the maximum COC category</p>	<p>Level III A</p>	<p>Strengthens the case for encouragement of continuity of care.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>Measuring continuity of care does not take into account how often, or how seldom, a patient may see their provider.</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Naz, A., Rosenberg, E., Andersson, N., Labonté, R., &amp; Andermann, A. (2016). Health workers who ask about social determinants of health are more likely to report helping patients: mixed-methods study. <i>Canadian Family Physician</i>, 62(11), e684-e693.</p>	<p>To assess the feasibility of implementing a clinical decision aid that helps front-line health workers ask their patients about social determinants of health, refer to local support resources, and advocate for wider social change</p>	<p>Mixed-Methods  Primary outcomes: Understanding of why certain patients are considered to be more vulnerable and how to help such patients.  -Explore barriers to asking about social determinants of health  -Identification of organizational levers for changing practice</p>	<p>n=50  Setting: A large, university-affiliated family medicine teaching center in Montreal, Canada.  St Mary's Hospital Family Medicine Centre  July 2013 to June 2014</p>	<p>To improve health, strategies need to be developed for increasing health equity.  Health workers who address patient social challenges were more likely to report having helped their patients as compared with those who did not know how to ask (93.8% vs 52.9%; <math>P = .003</math>)</p>	<p>Level III B</p>	<p>Health workers should initiate dialogue around SDOH and social challenges and better support patients in clinical practice.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Low response rate</li> <li>• Response bias</li> <li>• Lack of generalizability</li> </ul>
<p>Otsuka, S., Smith, J. N., Pontiggia, L., Patel, R. V., Day, S. C., &amp; Grande, D. T. (2019). Impact of an interprofessional transition of care service on 30-day hospital reutilizations. <i>Journal of interprofessional care</i>, 33(1), 32-37.</p>	<p>To evaluate Transitions of Care (TOC) service on 30-day hospital reutilization inclusive of hospital readmissions and ED visits</p>	<p>Retrospective  DV:30-day hospital reutilization inclusive of hospital readmissions and ED visits.  IV: interprofessional Transitions of Care (TOC) service</p>	<p>n=330  Conducted at two outpatient clinical practices within a large academic medical center in Pennsylvania.  September 2013 and October 2014</p>	<p>Outpatient interprofessional TOC service with a team of nurses, pharmacists, physicians, and social workers reduces 30-day hospital readmissions  Patients enrolled in TOC services had reduced hospitalizations following their appointment. (9.28% vs. 19.39%, <math>P=0.0009</math>)</p>	<p>Level III B</p>	<p>Transitional care clinics can have positive effects on reducing readmission and connecting patients to primary care.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Low sample size</li> <li>• Potential for selection bias</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Shah, S. J., Cronin, P., Hong, C. S., Hwang, A. S., Ashburner, J. M., Bearnot, B. I., Richardson, C. A., Blair, F., &amp; Kimball, A. (2016). Targeted reminder phone calls to patients at high risk of no-show for a primary care appointment: A randomized trial. <i>Journal of general internal medicine</i>, 31(12),1460–1466. doi:10.1007/s11606-016-3813-0</p>	<p>Determine whether telephone reminder calls targeted to patients at high risk of no-show can reduce no-show rates.</p>	<p>Randomized Control Trial  DV: No show rate of appointments  IV: Telephone reminder calls</p>	<p>n=2247  Internal Medicine Associates (IMA), an academic hospital-based primary care clinic at Massachusetts General Hospital (MGH).  May and November 2013</p>	<p>Reminder phone calls showed a 22 % reduction in the no-show rate compared to control patients.  The no-show rate in the intervention arm (22.8 %) was significantly lower (absolute risk difference -6.4 %, <math>p &lt; 0.01</math>, 95 % CI [-9.8 to -3.0 %]) than that in the control arm (29.2 %)</p>	<p>Level I B</p>	<p>Phone call intervention represents an approach for improving access to primary care, which is a principal performance measure of ACO quality.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• No generalizability</li> <li>• Operational limitation</li> <li>• No power analysis completed</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Sheridan, N. F., Kenealy, T. W., Kidd, J. D., Schmidt-Busby, J. I., Hand, J. E., Raphael, D. L., McKillop, A. M., &amp; Rea, H. H. (2015). Patients' engagement in primary care: powerlessness and compounding jeopardy. A qualitative study. <i>Health Expectations</i>, 18(1), 32-43.</p>	<p>To explore what poor older adults with chronic conditions who mostly belong to ethnic minority groups say they want from clinicians</p>	<p>Qualitative <i>Primary End point:</i> Uncover reasons for patient powerlessness and low engagement in primary care consultations.</p>	<p>n=42  Setting: Auckland, New Zealand's largest city  Jan-Dec 2008</p>	<p>Participants wanted to engage with clinicians in a way that allowed a conversation relevant to their needs and within the context of their lives as well as a role in self-management.</p>	<p>Level III B</p>	<p>Low levels of engagement reinforced powerlessness in the very people who may most need support to manage their conditions in the context of their often difficult lives.</p> <p><i>Limitation:</i></p> <ul style="list-style-type: none"> <li>• Small sample size</li> <li>• Lack of validity of coding process</li> </ul>

Author, Title, Journal	Purpose	Design & Variables	Sample & Setting	Results	Strength	Application & Limitations
<p>Thompson, A. C., Thompson, M. O., Young, D. L., Lin, R. C., Sanislo, S. R., Moshfeghi, D. M., &amp; Singh, K. (2015). Barriers to follow-up and strategies to improve adherence to appointments for care of chronic eye diseases. <i>Investigative ophthalmology &amp; visual science</i>, 56(8), 4324-4331.</p>	<p>To understand factors of poor attendance of follow-up appointments and to identify strategies to improve adherence.</p>	<p>Cross-Sectional  Primary End Points: What factors affect poor attendance at follow up appointments</p>	<p>n=260  Setting: Byers Eye Institute, Department of Ophthalmology, Stanford University School of Medicine, Palo Alto, California, United States  June 1 and November 30, 2009</p>	<p>Improvements in patient education, transportation services, and clinic efficiency may increase adherence to recommended appointment intervals.  Difficulty to get to the appointment and miss work were main reasons for lack of follow up (P = 0.049).</p>	<p>Level III B</p>	<p>Improvements in patient education, transportation services, and clinic efficiency may increase adherence to recommended appointment intervals.  <i>Limitations:</i></p> <ul style="list-style-type: none"> <li>• Single institution</li> <li>• Modest sample size, which limited the power</li> <li>• Selection Bias</li> </ul>

**Appendix C: Salisbury University Institutional Review Board Approvals (2 pages)**

Salisbury University  
Institutional Review Board  
Committee on Human Research  
Phone: (410) 548-3549  
Fax: (410) 677-0052  
Email: [humanresearch@salisbury.edu](mailto:humanresearch@salisbury.edu)

**IRB Research Protocol Approval Notification**

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Date: 5/21/20

To: A. Barnes  
A. Emerson  
RE: Protocol #30  
Type of Submission: Expedited  
Type of IRB Review: Expedited  
Protocol is scheduled to begin 8/2020 end 12/2020

**Approval for this project is valid from 5/21/2020 to 12/31/2020**

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This letter serves to notify Dr. Annette Barnes that the Salisbury University (SU) Institutional Review Board (IRB) approved the above referenced protocol entitled, Increasing Engagement in Primary Care Following Transitional Care on May 21, 2020.

Pursuant to Federal regulations 21 CFR 56.109, the IRB has determined that this protocol qualifies for Expedited review.

Federal regulation 45 CFR 46.103 (b)(4)(iii) requires Primary Investigators (PI), except when a subject is in immediate danger, to assure any change to an approved protocol is not initiated prior to IRB review and approval. Additionally, the PI must also inform the IRB of unanticipated problems involving risks to participants.

These same federal regulations require continuing review of research be conducted by the IRB at intervals appropriate to the degree of risk. Your research is scheduled to begin 8/2020 and end 12/2020. It is the PI's responsibility to submit continuing review reports in a timely manner (at least 3 weeks prior to scheduled end date on the protocol approval).

The SU IRB is organized and operated according to guidelines of the United States Office for Human Research Protections and the United States Code of Federal Regulations and under Federal Wide Assurance No. FWA00020237.

If you have any questions about this review or questions, concerns, and/or suggestions regarding this process, please do not hesitate to contact the Office of Graduate Studies and Research at 410-548-3549 or [humanresearch@salisbury.edu](mailto:humanresearch@salisbury.edu).

  
Co-Chair, IRB Committee on Human Research



I am the principle investigator. I am submitting this form electronically and this submission constitutes my signature.

Principal Investigator: Ally Emerson

Date: 6/26/2020

Office use only	Amendment #: 32A-
Submission Date: 6-26-2020	
IRB Approval Date: 7-1-2020	

Data Collection Procedure

Forms

Other

2. **Summary:** Provide a detailed description of all changes and rationale below. Attach new and/or revised document(s) with your amendment request. (Do not revise initial IRB application or attach with request; initial applications may not be altered after approval is granted.)

**Description:** Due to the COVID-19 pandemic, the Johns Hopkins After Care Clinic (ACC) has decided to utilize telemedicine through the 2020 calendar year to provide assessment and care for the majority of referred patients. Practices and procedures for face-to-face care are occurring for approximately 25% of referrals. Patient volume has been unaffected as Johns Hopkins' emergency department and inpatient settings continue to refer patients to the ACC per protocol. Despite the change in the delivery method for transitional care services, patients seen in person will continue to be registered and screened for participation in the DNP project per identified inclusion criteria. Patients evaluated through telemedicine will not have a registration process, but will be screened for inclusion by a nurse and receive the same resources through a secure web-based platform to include nurse interaction, interdisciplinary services, and the planned interventions of social determinants of health (SDOH) screening and nurse-directed phone calls to increase engagement in primary care following evaluation in the ACC.

**Appendix D: CITI Training (2 pages)**



Completion Date 25-Jan-2018  
Expiration Date N/A  
Record ID 25917093

This is to certify that:

**Ally Emerson**

Has completed the following CITI Program course:

**Information Privacy Security (IPS)** (Curriculum Group)  
**Students and Instructors** (Course Learner Group)  
**1 - Basic Course** (Stage)

Under requirements set by:

**Salisbury University**



Verify at [www.citiprogram.org/verify/?wec1d2815-1acb-442d-8ae1-7f5033b30d58-25917093](http://www.citiprogram.org/verify/?wec1d2815-1acb-442d-8ae1-7f5033b30d58-25917093)



Completion Date 25-Jan-2018  
Expiration Date N/A  
Record ID 25917094

This is to certify that:

**Ally Emerson**

Has completed the following CITI Program course:

**Human Subjects Research** (Curriculum Group)  
**Student researchers** (Course Learner Group)  
**1 - Basic** (Stage)

Under requirements set by:

**Salisbury University**



Verify at [www.citiprogram.org/verify/?w883637ea-4e8c-4de6-bd86-fbffc4e18c2-25917094](http://www.citiprogram.org/verify/?w883637ea-4e8c-4de6-bd86-fbffc4e18c2-25917094)

  Completion Date 24-Jan-2018  
Expiration Date 23-Jan-2022  
Record ID 25917092

This is to certify that:

**Ally Emerson**

Has completed the following CITI Program course:

**CITI Conflicts of Interest** (Curriculum Group)  
**Conflicts of Interest** (Course Learner Group)  
**1 - Stage 1** (Stage)

Under requirements set by:

**Salisbury University**

  
Collaborative Institutional Training Initiative

Verify at [www.citiprogram.org/verify/?w95ea9664-36e5-48c8-8b97-74ef32e29ba7-25917092](http://www.citiprogram.org/verify/?w95ea9664-36e5-48c8-8b97-74ef32e29ba7-25917092)

  Completion Date 25-Jan-2018  
Expiration Date 24-Jan-2023  
Record ID 25917091

This is to certify that:

**Ally Emerson**

Has completed the following CITI Program course:

**Social and Behavioral Responsible Conduct of Research** (Curriculum Group)  
**Social and Behavioral Responsible Conduct of Research** (Course Learner Group)  
**1 - RCR** (Stage)

Under requirements set by:

**Salisbury University**

  
Collaborative Institutional Training Initiative

Verify at [www.citiprogram.org/verify/?wae0effa9-f10e-47cb-b355-32d170de50c1-25917091](http://www.citiprogram.org/verify/?wae0effa9-f10e-47cb-b355-32d170de50c1-25917091)

**Appendix E: SWOT Analysis**

<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Coordination and continuity of care</li> <li>• Convenient and established location</li> <li>• Ability to accommodate underserved populations.</li> <li>• Interdisciplinary team (nurse, social work, physicians, advanced practice nurse, pharmacist) on site</li> <li>• Cost efficient for the hospital.</li> <li>• Link between clinical and community settings</li> <li>• Reduces emergency room visits for non-emergent needs.</li> <li>• All-payer rate model supports underserved.</li> <li>• Electronic Medical record integrated to entire health system (acute &amp; outpatient)</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Poor continuity of care</li> <li>• Overutilization of ED</li> <li>• Readmissions to hospital</li> <li>• Ineffective communication from inpatient to outpatient care</li> <li>• Low health literacy</li> <li>• Lack of consistent follow up in primary care after ACC to date.</li> </ul>
<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Return-on-investment if integrated into larger health systems.</li> <li>• Improve cost of spending.</li> <li>• Achieve triple aim of improving care, improving health, and saving health care costs.</li> <li>• Reduce readmissions.</li> <li>• Increased growth in primary care engagement from 38% among low-income patients</li> <li>• Ability to widen network of resources and connect community members with both medical and social services</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Time and resources expended if population not engaged</li> <li>• Lack of payment from uninsured patients can cause increased costs for the hospital (All payer systems can assist)</li> <li>• Hospitals are at risk for HRRP penalties.</li> </ul>

**Appendix F: Educational PowerPoint for ACC Staff**

**Slide 1**

DNP PROJECT:  
INCREASE PATIENT  
ENGAGEMENT

Ally Emerson  
Salisbury University

**Slide 2**

Purpose

- To implement evidence based strategies that target the high risk populations of Medicaid and uninsured persons, to increase their engagement into primary care services.
- Target Population: Male and females patients 40 years or younger that are Uninsured or Medicaid insured

Slide 3

## Evidence-Based Interventions

- Nurse driven interventions that focus on using bundled approaches to care, specifically with assistance of the interdisciplinary team.
- Literature from Conway, O' Donnell and Yates' (2019) systemic review highlights the nurse in a care coordination role as well as using the bundle care approach:
  - *Nurse care coordination role results in improved patient and health service outcomes where they involved frequent, in-person interactions, had ongoing follow-up with monitoring of disease status, and involved transition care and the application of behavior change principles.*
  - *The most successful After-Care Clinic programs focused on using bundled interventions that involve both the pre-discharge and post-discharge periods*

**Therefore my interventions are....**

- 1. Intra Appointment Social Determinant Screening by a nurse**
- 2. Post-discharge nurse-directed phone calls**

Slide 4

## Outline

*When the target population of Male/Female patients less than 40 that are uninsured or Medicaid insured present to the ACC for their appointment...*

- 1. The nurse will see this patient and screen for SDOH to assess if there are barriers to engagement in their health.**
  - If barriers are present, the nurse will involve the necessary persons who are able to provide the best resources of the patient. (Example: Financial strain occurs as patients are unable to get medications—pharmacy can be involved for vouchers)



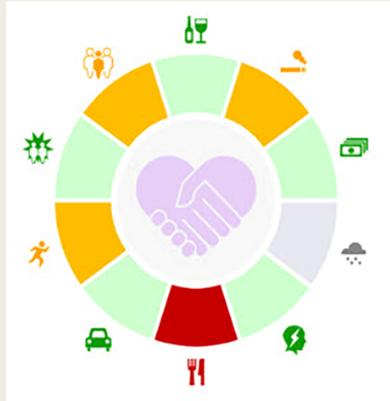
- 2. Following completion of the ACC appointment and prior to the patient leaving, a Johns Hopkins affiliated PCP appointment will scheduled (preferably within 1 month following ACC appt)**
  - The patient will provide their contact information (cell or home number)



- 3. The nurse will call the patient 1 week before their JHH affiliated primary care appointment.**
  - The call will consist of a needs assessment, education, symptomatic review and follow-up, and primary care appointment confirmation.

Slide 5

## Social Determinant Screening



- The SDOH Wheel shows **10 domains**, each representing a factor that can influence health: financial resource strain, transportation needs, alcohol use, depression, intimate partner violence, social connections, physical activity, tobacco use, stress and food insecurity.
1. After nurse SDOH assessment, if the patient screens positive for any need, the nurse will provide the necessary resources or consult the appropriate interdisciplinary team members to become involved in the patients care to directly resolve the barriers to care
  2. Following the full SDOH screening and completion of nurse interaction, their appointment follows as normal.

Slide 6

## Post-Discharge Phone Calls



- Following completion of the ACC appointment, patients will be scheduled a primary care appointment by registration.
- Patient will provide a phone number that is best for contact purposes.
  - *This is documented in the EHR and log sheet*
  - *If the patient does not have access to a phone, they could provide the number of a emergency contact as backup*
- The nurse will call the patient one week before their scheduled appointment using a script provided to guide the call
- Call will include an assessment for worsening symptoms, home care needs and confirmation/reminder of the upcoming primary care appointment



**Appendix G: Proposed Timeline**

<b>TIME PERIOD</b>	<b>ACTIVITY</b>
December 2019	Team meeting to discuss and approve EBP
April 27, 2020	Submitted application to Salisbury University IRB for review and approval
May 1, 2020	Healthcare Organization IRB obtained
June 18, 2020	Presented educational PowerPoint to ACC staff and discuss practice change.
July 2020	ACC Director notified staff of project start date and PI interaction
August - October 2020	Project Implementation Completed
December 2020- January 2021	Data Collection & Analysis
March 2021	Completed DNP Project Final Paper & Manuscript
April 2021	Dissemination of Findings through DNP Project Presentation



## Appendix I: Script for Nurse Reminder Phone Calls

### A.1 Introduction

The purpose of this call is to remind the patient of their upcoming primary care appointment.

**CALLER:** Hello Mr. /Mrs. \_\_\_\_\_. I am (caller's name), a nurse from the After Care Clinic. You may remember when you had your appointment, we discussed a reminder phone call for your upcoming primary care appointment.

Is this a good time to talk? It will probably take three minutes.  
If **yes**, continue.

### E.2 Clarification of Appointment

**CALLER:** You are scheduled for (date, time, and location of appointment).  
Will you be able to attend this appointment? Is there anything that might get in the way of your appointment?

- **If yes**, Let's talk about how we can work around these difficulties.