IMPLEMENTATION OF A SOCIAL DETERMINANTS OF HEALTH SCREENING AND REFERRAL PROCESS IN A PRIMARY CARE SETTING: A QUALITY IMPROVEMENT PROJECT

by

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER ONE

REVIEW OF THE LITERATURE

Introduction

Social determinants of health (SDOH) are considered essential needs and include housing, income, education, employment, transportation, and food (World Health Organization [WHO], 2024). Having these SDOH needs met or unmet can affect a patient's ability to receive adequate access to healthcare services (Arroyave Caicedo et al., 2024). SDOH can have a significant influence on medical care and rising healthcare costs (Chen et al., 2020). The lack of these adequate needs being met can potentially lead to worsening comorbidities and overall health outcomes (Chen et al., 2020). Screening for SDOH can aid in the identification of patients at risk and development of interventions, referrals, and follow-ups (Arroyave Caicedo et al., 2024).

Background and Significance

Healthy People 2030 set a goal to address the impact of SDOH and improve health disparities that currently exist (Healthy People 2030, 2024b). Patients who lack access to essential needs such as healthy food, transportation to healthcare visits, or housing with adequate clean water supply or utilities, often have significantly higher health disparities. According to the WHO, between 30-55% of health outcomes can be attributed to a patient's unmet SDOH needs (WHO, 2024). Lower socioeconomic status and health disparities further increase the risk for disease progression, comorbidities, and mortality (Painter et al., 2024). In 2023, it was reported that 11.7 % of Montana's population was living below poverty level (Benson, 2024), and

approximately 33% of Montanans live in a rural area (Health Resources and Services Administration [HRSA], 2024). Patients living in rural areas have less access to healthcare services and resources (Rural Health Information Hub [RHI], 2024a). The limited resources and barriers to accessing care affects patients' ability to manage their healthcare and access preventative care (RHI, 2024a).

Approximately 60% of Americans have a chronic health condition such as cardiovascular disease (CVD) or diabetes that requires some degree of self-management outside of a hospital setting (Bleacher et al., 2020). Without sufficient access to essential needs, patients are often unable to manage their health at home (Bleacher et al., 2020). For example, someone with diabetes may require supplies or medications such as insulin or glucometer strips. If someone does not have adequate transportation or income to afford supplies, it will greatly affect their ability to manage their diabetes. To address these potential unmet needs, screening can be completed to identify patients who have SDOH needs. The SDOH screenings should be conducted in the clinical setting to identify patients at risk and in need of social services and additional support. This can give providers, such as MD's, Nurse Practitioner's (NP), or Physician Assistants (PA) a better understanding of a patient's unique social situation and how that situation may affect their ability to care for their medical needs at home.

The Centers for Medicare and Medicaid (CMS) mandated that starting January 1st, 2024, all healthcare organizations should screen all inpatients for SDOH (Martin, 2024). There are five areas that must be addressed in these screenings which include: housing, transportation, utilities, interpersonal safety, and food accessibility (Martin, 2024). It has yet to be established where the most appropriate clinical setting is for SDOH screening to take place, whether it be inpatient,

outpatient, or both (Martin, 2024). Due to SDOH's emerging use, there is little to no data on the screening rates of SDOH at the national or state level. One evidence-based-SDOH screening tool that is often utilized in practice is the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) (Jones et al., 2022). In practices where standardized tools are not being used, organizations must ensure the five areas are being addressed using a different type of screening process. In the inpatient setting, SDOH screening should be completed upon admission to the hospital (Martin, 2024).

In the outpatient setting, screening could take place during annual visits, as this is when other screenings are typically completed as well. Primary care is the optimal clinical setting to conduct screening as this is when other preventative screening is often discussed (Boch et al., 2020). The screening questions could be completed at check-in and the results entered into the electronic health record (EHR). The providers should then be notified when patients have a positive screen, and they can further assess the patients and provide them with appropriate referrals and services. SDOH screening could allow for improvement of health outcomes, decrease in healthcare costs, overall access to essential SDOH needs, and provide the patient with better overall healthcare (Painter et al., 2024).

Methods

In this review, a literature search was conducted between August 30th to September 7th, 2024 in: Medline, ProQuest, PubWeb, Web of Science, CatSearch, CINAHL, and EBSCO with CINAHL. The keywords and phrases utilized in the search were: "social determinants of health" AND "screening" AND "primary care" AND "adults" AND "quality improvement". Once the maximum yielded results were identified, the Preferred Reporting Items for Systematic reviews

and Meta-Analyses (PRSIMA) guidelines were utilized to screen out eligible literature (Moher et al., 2009). See Appendix A. for PRISMA diagram.

The total number of articles retrieved n=1,319 once the duplicates were removed, n= 1,281 articles were left for title and abstract screening. One primary reviewer (E.W.) completed the title and abstract screen. Twenty-five articles were eligible for full-text review by the primary reviewer with oversight by mentor (R.L.H). Inclusion criteria in the full-text screen included: (1) published after 01/01/2019, (2) setting based in primary care, (3) adult study participants, (4) and published in English.

Results

A total of n=11 articles met final criteria which included: mixed-method studies (n=3), quality improvement research (n=1), cross-sectional studies (n=3), observational research (n=2), and qualitative research (n=2). All included literature met the inclusion criteria of reporting on the effects of unmet SDOH on patient health outcomes and the current barriers and facilitators that exist to implement the screening effectively.

SDOH and Health Outcomes

Several studies (n=3) reported on SDOH effect on health outcomes and healthcare utilization (Bleacher et al., 2020; Heller et al., 2021; Jones et al., 2022). More specifically it was noted that any degree of unmet SDOH needs can lead to increased risk for unwanted health outcomes (Bleacher et al., 2020). Patients with adequate SDOH needs and the ability to manage their health at home will positively impact their health outcomes and quality of life (Bleacher et al., 2020). There must be a degree of self-management when it comes to certain health conditions

such as diabetes or cardiovascular disease. Themes were identified among two cross-sectional studies and a quality improvement pilot regarding the association between insufficient SDOH needs, lack of self-management ability, and the effect on health outcomes (Bleacher et al., 2020; Heller et al., 2021; Jones et al., 2022). A quality improvement pilot found statistical significance ($p<.05$) with the association between low health confidence scores and higher number of SDOH needs (Bleacher et al., 2020). Low health confidence scores and unmet SDOH needs significantly impact a patient's ability to care for themselves (Bleacher et al., 2020). The two cross-sectional studies found the higher the number of SDOH needs, the higher risk for comorbidities the higher healthcare utilization (Heller et al., 2021; Jones et al., 2022). In one study there was an 84% higher risk for drug or alcohol abuse when there is a lack of available transportation, and a 37% risk for asthma when there is inadequate housing (Heller et al., 2021). Jones et al., (2022) also reported an increased risk for asthma when there are greater than three SDOH needs reported. These studies indicated that having unmet SDOH needs are detrimental to the overall health and self-management of disease for patients.

Behavioral health is also impacted by patient's SDOH needs. Patients with greater than four SDOH needs were found to be four times more likely to score poorer on the Patient Health Questionnaire-2 (PHQ-2) indicating an increased risk for depression and further decline in mental health (Heller et al., 2021). Jones et al. (2022) found the more SDOH needs present, the higher likelihood for adverse behavioral health outcomes. There is an established association between unmet SDOH needs and increased healthcare utilization and costs (Bleacher et al., 2020). There was a 1.61 times greater association with emergency department utilization when patients had greater than three SDOH needs (Jones et al., 2022). Additionally, this study

demonstrated that patients with greater SDOH needs have a higher likelihood of more primary care visits (Jones et al., 2022). As shown in the literature, there is a greater risk for comorbidities when there is an increase in SDOH needs, thereby causing an increased risk for adverse health outcomes and healthcare costs (Bleacher et al., 2020; Heller et al., 2021; Jones et al., 2022).

Barriers to SDOH Screening

Various studies reported on provider and patient perspectives of integrating SDOH screening into primary care screening practices (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). There were common themes reported across these studies. In three mixed-method studies and three qualitative studies, it was reported that SDOH screening is an important component to patient's care, and it should be incorporated into treatment decisions (Jordanova et al., 2024; Kostelanetz et al., 2022; Pinto et al., 2019). Since SDOH screening is an emerging practice, there are barriers to completing the screening efficiently and ensuring patients are receiving adequate follow-up (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). It was reported that providers often state time constraints as a barrier to complete the screening or discuss the screening results with patients (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). In the mixed-methods study by Kostelanetz et al. (2022), out of 193 survey participants, 45% reported a lack of time to address SDOH and therefore even with screening SDOH, the results are not being addressed. Providers also reported a lack of confidence and experience in discussing SDOH and addressing patient's needs (Kostelanetz et al., 2022; Pinto et al., 2019; Rudisill et al., 2023).

Upon completion of the SDOH screenings, a lack of clarity exists as to the next steps when a positive screen presents. Another common barrier found was a lack of available community resources and support when a screening was positive (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Pinto et al., 2019). It was reported that 51% (96 out of 193) of survey respondents in a mixed-methods study reported a lack of resources for unmet SDOH needs support (Kostelanetz et al., 2022). Additionally, building rapport among the communities and the resources was recommended to help address SDOH and help patients get necessary services (Jordanova et al., 2024). It was reported that there is a need for some type of referral and follow-up workflow to ensure that the screening was effective (Kostelanetz et al., 2022). Additionally, it was recommended from providers that an algorithm be created when patients are screening positive so they can be connected with the appropriate personnel (Kostelanetz et al., 2022). A lack of support staff such as social workers or patient care coordinators was a common theme reported as part of the workflow for getting patients the resources they need (Jordanova et al., 2024; Kostelanetz et al., 2022; Pinto et al., 2019; Rudisill et al., 2023). To address the lack of support staff, buy-in from stakeholders and administration was recommended to allow for the possibility of hiring additional staff such as social workers (Jordanova et al., 2024). To receive support and buy-in from administration, it would be important to address how SDOH impacts patient outcomes and healthcare costs. With a better understanding of how SDOH can affect healthcare costs and utilization, there is the potential for upstream spending to hire the support staff to meet these needs. While barriers exist at the provider, staff, and patient level, it is necessary to find ways to overcome these barriers, to prevent further negative implications on future SDOH research and practice.

Facilitators to SDOH Screening

Facilitators to SDOH screening are present at different levels, including the patient, provider, and support staff. Kostelanetz et al. (2022) found that 94% of study participants believed that learning about patients SDOH could impact care and treatment decisions. Providers reported the ability to manage patients care more efficiently and build rapport when SDOH was addressed (Jordanova et al., 2024; Mizumoto et al., 2023). The screening and interventions for unmet SDOH, can help develop a trusting relationship between patients and their providers (Browne et al., 2021).

Facilitators that were reported with regard to SDOH screening, included developing a universal screening process, and educating patients and providers on the screening tool (Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). Explicated role identification during the screening process, such as who is completing the screening or reporting on the outcomes, could help streamline the workflow (Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). Identification of who will conduct the screening, input the data, address positive screenings, and ensuring follow-up will create a streamlined screening process (Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). Development of lists of community resources will help providers understand what is available in their community and give patients connections for needed services (Browne et al., 2021). Lastly, it is essential that the organization is networked with different resources throughout the community, to help facilitate the referral process (Browne et al., 2021; Jordanova et al., 2024). Collaboration is a crucial aspect to build networks for resources and services in the surrounding communities (Browne et al., 2021; Jordanova et al., 2024). These studies indicated the various facilitators to SDOH screening and how to improve the process of screening, referral, and follow-up.

Electronic Health Record Integration

Integration of the EHR into the screening process could create a streamlined process and coordination of care among various interdisciplinary team members and organizations. Themes in the literature were reported regarding the use of the EHR in the SDOH screening processes. Various studies discussed how the EHR allows for tracking of screening data, referrals, and creation of a streamlined process (Bunce et al., 2023; Jordanova et al., 2024; Kostelanetz et al., 2022). A mixed-methods study by Pinto et al. (2019) studied physician's perspectives on the feasibility of poverty screening in primary care. From this qualitative data, it was suggested that the EHRs could be utilized to create reminders or alerts for providers to complete the screenings (Pinto et al., 2019). Lastly, physicians discussed how the time spent counseling patients could be billed, which could be an incentive to complete the screening (Pinto et al., 2019).

The EHR is a useful way of tracking if SDOH was identified, and referrals were placed. An observational study conducted by Buitron et al. (2019) discussed utilizing ICD-10 codes to track if SDOH was addressed during visits. Out of a total of 445 patients screened, 82% were shown to have correct ICD-10 codes that correlate with SDOH needs attached to their problem lists (Buitron et al., 2019). Additionally, 86% of patients who had a positive screen were provided with appropriate referrals or information to obtain services (Buitron et al., 2019). A mixed-methods study by Kostelanetz et al. (2022) interviewed 16 healthcare professionals and 69% reported the EHR could be used to create an automated referral process. As discovered in the literature, the EHR can be used in various steps of the SDOH screening process to ensure patients are being screened and are provided with appropriate referrals and follow-up (Buitron et al., 2019; Bunce et al., 2023; Jordanova et al., 2024; Kostelanetz et al., 2022; Pinto et al., 2019).

Literature Gaps. The literature discussed the effect of unmet SDOH needs on health outcomes and healthcare utilization, barriers and facilitators to SDOH screening, and integration into clinical settings using the EHR (Bleacher et al., 2020; Buitron et al., (2019); Bunce et al., (2023); Browne et al., 2021; Heller et al., 2021; Jones et al., 2022; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). While SDOH screening is increasing in utilization and importance, there is limited data on if SDOH screening will improve health outcomes. What is known is that SDOH have a significant effect on patients, but it is limited as to what specific aspects of patient care and outcomes will improve with screening. As previously discussed, assessment of SDOH needs and the impact on health, is one of Healthy People's 2030 goals (Healthy People 2030, 2024b).

Future research must study how patient health outcomes and healthcare utilization are affected when SDOH is screened. As discussed, there are many barriers to the successful implementation of SDOH screening in primary care. This review highlights the need for additional research on how to reduce barriers and develop a streamlined screening processes for all healthcare organizations (Jordanova et al., 2024). As SDOH screening continues to emerge in practice, the development of future policy is anticipated. To further improve the practice of SDOH screening, future research should include how to address SDOH barriers and improving the process from SDOH screen, to referral, and lastly to follow-up. Additionally, future research should study the long-term health outcomes of SDOH screening to further emphasize the importance of screening. The findings from this scoping review can be integrated into future practice to facilitate SDOH screening.

Conclusion

Through this scoping review, it can be noted that improvements in SDOH unmet needs can have a positive impact on health outcomes and healthcare costs. It is widely accepted that there is an increased risk for physical and mental adverse health outcomes when patients lack adequate SDOH needs such as housing, transportation, and employment. Thus far the literature has reported on providers and the many barriers such as lack of time, knowledge, support staff, or community resources to sufficiently screen and intervene patients with SDOH needs (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). Additionally, there are various strategies to facilitate SDOH screening in the clinical setting such as utilization of the EHR in the screening process, getting stakeholder buy-in, or building rapport among the communities for resources and services (Brown et al., 2021; Buitron et al., 2019; Bunce et al., 2023; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudsill et al., 2023). This review highlighted the importance of SDOH screening and with identification of barriers and facilitators it will help further research and the development of screening processes and intervention.

CHAPTER TWO

QUALITY IMPROVEMENT PROPOSAL

Introduction

The degree of unmet social determinants of health (SDOH) needs, such as housing, utilities, transportation, or food, significantly impacts patients' health outcomes, healthcare utilization, and costs (Chen et al., 2020). Approximately between 30-55% of worldwide health outcomes can be attributed to unmet SDOH needs (World Health Organization [WHO], 2024). The number of unmet SDOH needs often correlates with lower socioeconomic status (Healthy People, 2024a). In 2023, 12.5% of the U.S. population was below poverty (Benson, 2024). At a statewide level, in 2023, 11.7 % of Montana's population was living below the poverty level (Benson, 2024), and 33% of Montanans residing in rural areas (Health Resources and Services Administration [HRSA], 2024). Rural residents often face barriers to accessing healthcare, such as limited resources (e.g., specialty services, mental health care, and home health services) or a lack of public transportation (Rural Health Information Hub [RHI], 2024a). These demographics emphasize the importance of screening and addressing patient's SDOH, especially in underserved areas, to improve health outcomes and quality of life.

Problem Statement

A goal of Healthy People 2030 is to address SDOH and improve worldwide health outcomes (Healthy People 2030, 2024b). One primary care clinic in rural Montana, significantly lacks an efficient process for SDOH screening, intervention, and referral for their patient population. A gap exists with SDOH screening process, which leads to patients with unmet

SDOH needs potentially falling through the cracks. Therefore, this leads to patients having difficulty managing their care needs, potentially resulting in worsening health outcomes. To facilitate the screening process and address the needs that are identified, the literature recommends: (a) EHR utilization, (b) provider and support staff education, (c) role identification, (d) community resources/services identification, (e) and development of universal screening processes (Brown et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). To address the needs of the clinic as evidenced by the literature, a QI project will be implemented to develop an efficient SDOH screening and referral process.

Before implementation of this project occurs, staff education will be completed with providers, support staff, and registration staff. This project will be implemented among five different primary care providers (PCP) at the clinic. Implementation will begin with an SDOH screening form given to patients at check-in who are scheduled for annual and new patient visits. The SDOH questions that are currently in the EHR will be converted into a paper screening form. The current SDOH screening questions follow the Centers for Medicare and Medicaid Services (CMS) Accountable Health Communities Health-Related Screening Tool (AHC HRSN) (CMS, n.d.). The screening question's focus on patient's housing, transportation, food accessibility, and home utilities (CMS, n.d.). See Appendix F for screening form obtained from project site. The provider's support staff, either nurses or medical assistants (MA), will enter the patient's SDOH answers into the EHR. The provider will review the SDOH screening results and patients with positive screenings will be provided with a community resource list and referred to the clinic's social worker. Using the stated interventions, it is predicted that the rates of SDOH screening and referral to social services will increase.

Microsystem Assessment

At this specific rural primary care clinic, there are SDOH questions integrated into the patients EHR. Despite the presence of these EHR SDOH questions, the rates of SDOH screening completion is very low, nearly zero percent for some providers. An EHR report on SDOH screen was obtained from January 2024 to October 2024 of the five PCP's, it was indicated that less than 5% (approximately 32 out of 2,582) of patients are being screened. The clinic is a recognized Patient Centered Medical Home (PCMH). A part of sustaining recognition as a PCMH is to show improvement in the SDOH screening metrics. Additionally, the providers are aware that SDOH screening is not being completed, which was of concern because of the effect of unmet SDOH needs on patient's health outcomes. There is buy in present from this clinic and the stakeholders, through the desire to maintain PCMH recognition and improve patient outcomes and healthcare.

The clinic is affiliated with a Critical Access Hospital and is located in Southwest Montana. Critical Access Hospitals are recognized by Centers for Medicare and Medicaid Services (CMS) as being a designated facility to provide care for rural communities (RHI, 2024b). The hospital provides various services and specialties such as: laboratory services, orthopedics and spine, urology, general surgery, oncology, pediatrics, obstetrics and gynecology, emergency care, inpatient care, and primary care. The primary care clinic serves patients of various ages from the surrounding rural communities.

Stakeholders involved in the project will include the Chief of Clinic Operations (CCO) who is overseeing the project, along with registration staff, five primary care providers, five clinic staff consisting of nurses and MA's, one social worker, and the informational technology (IT) staff. The clinic staff, such as the nurses and MA's will room patients after they have been

checked in by registration staff. They will often collect other screenings that patients have completed during check-in, which they will review with the provider and enter the results into the patient's EHR. Upon discussion with the clinic social worker, providers will often send referrals or a secure message to the social worker when their patients are in need of resources.

On October 2nd, 2024, a needs assessment of the project site was completed by the DNP-Student (DNP-S). The DNP-S shadowed one of the five PCP's on their workflow, as well as observed the support staff workflow. The PCP noted how other screenings are completed with patients and the role of the support staff during this process. Additionally, the DNP-S met with the clinic social worker and discussed her role in the referral process and how providers usually communicate with her. Lastly, the DNP-S met with the site representative to discuss findings and finalize the implementation process. The needs assessment discovered how to implement the screening process, as well as the various roles to standardize and improving the screening and intervention process.

Specific Aims and Purpose Statement

The overall purpose of this quality improvement project is to improve the rates of SDOH screening and the process of referring patients to needed social services. More specifically that all annual and new patients will be screened for SDOH and any positive screens will be given a resource list and referred to social services. The project aims are to 1) recognize patients with unmet SDOH needs, and 2) provide patients with adequate resources and support. The long-term goal is for patients who receive support for SDOH needs will be able to better self-manage their health at home. See Table 1. for a description of SMART goals.

Table 1. SMART GOALS of Quality Improvement Project

<table>
<tr><td colspan="3">Smart Goal #1: By January 10th, 2025, 100% of support staff (Nurses & MA's) and providers will receive education on:
• Purpose and aims of project
• New SDOH screening process implemented into workflow and individual roles</td></tr>
<tr><td colspan="3">Education will consist of:
• Sending an email to all staff involved on the new process
• Brief in-person education to each provider and their support staff
• Process flowchart</td></tr>
<tr><td>Data to be collected</td><td>Collection Process</td><td>Planned data analysis</td></tr>
<tr><td>Likert Survey for providers, support staff, and registration staff.</td><td>Likert survey to be given before and after implementation.</td><td>Comparison of Likert responses before and after implementation.</td></tr>
</table>

Smart Goal #2: 100% of adults 18+ years scheduled for annual or new patient visit will receive and complete the SDOH screening tool at check-in between January 13th 2025- February 24th, 2025.
All adult patients who are scheduled for annual or new patient visit will receive the SDOH screening questions on paper format at check-in. Registration staff to give patients screening form

Table 1 Continued.

Data to be collected	Collection Process	Planned data analysis
Number of patients scheduled for annual and new patients who completed screening.	Support staff (Nurse or MA) to enter screening results into patient's EHR. Template in secured shared drive for support staff to track if screening was completed and positives.	Percentage of completed screens via EHR generated report from EPIC/IT staff or chart audits.

Smart Goal #3: 100% of adults who screened positive for SDOH needs receive resource list and referral to social worker between January 13th 2025- February 24th, 2025.		
Provider will review SDOH screening results and if positive screen: • Nurse or MA will give patient resource list • Provider will send referral to social worker		
Data to be collected	Collection Process	Planned data analysis
Number of positive screens that receive resource list and referred to social worker.	Support staff (Nurse or MA) to track positive screens, resource lists/referrals into shared drive template. Social worker to track on template if referral was received.	Percentage of positive screens versus received resource list and referred through chart audits from template created.

Quality Improvement Model

The Institute for Healthcare Improvement (IHI) Model for Improvement utilizes the Plan-Do-Study-Act (PDSA) cycle (see Figure 1.) to develop a plan and adjust as needed for the desired outcomes (Institute for Healthcare Improvement [IHI], n.d.). The IHI's PDSA cycle will serve as the framework for this quality improvement project. The PDSA cycle allows modifications to occur during the implementation process if necessary (IHI, n.d.). The changes in the cycle can be continued throughout the process until outcomes are reached (IHI, n.d.).

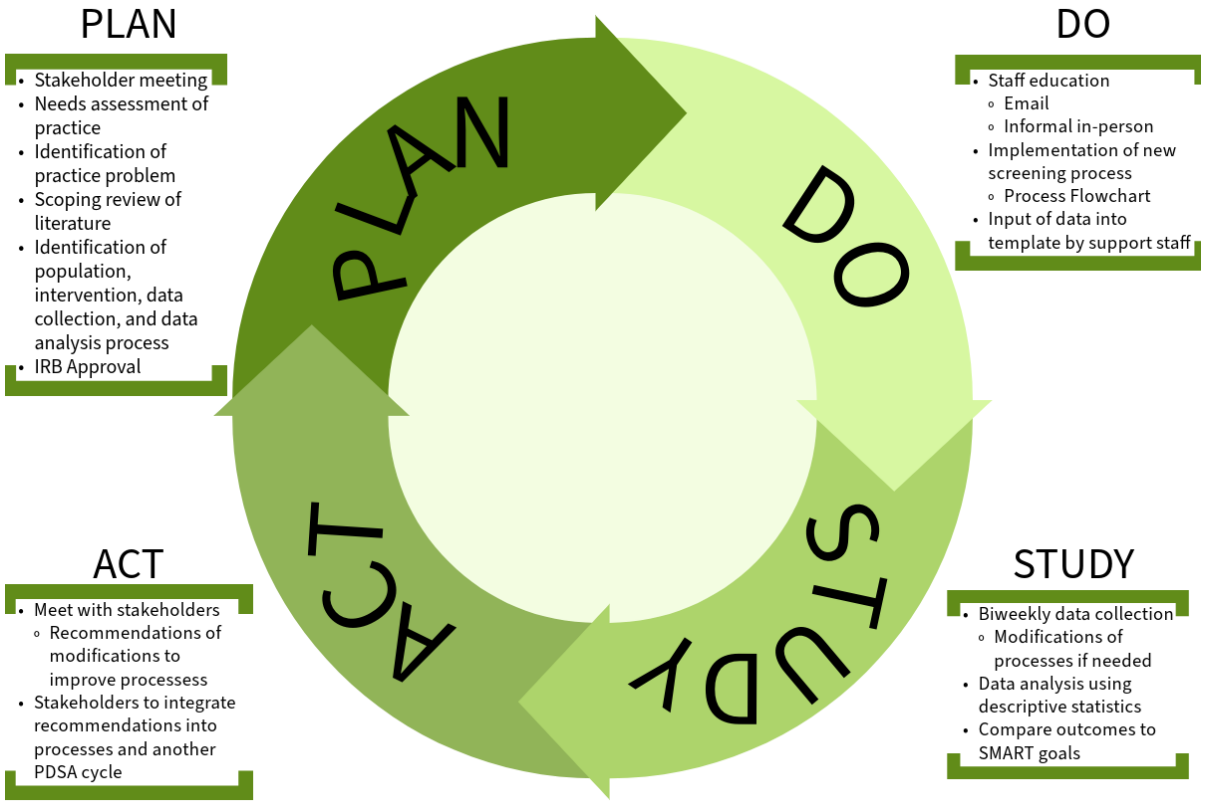
The first step is (P)lan, which consists of developing the steps of the project, such as implementation and how data will be collected (IHI, n.d.). Step one began in August 2024, and will continue through December 2024. This step was initiated through identification of the project site and determining a practice problem through dialogues with the site representative. Once a problem was determined, a literature review was conducted to identify evidence-based literature surrounding SDOH screening in primary care. It was found that SDOH screening is feasible, but there are current barriers that affect the current rates of SDOH screening. A needs assessment was conducted in October 2024, involving various stakeholders such as the site representative, social worker, support staff, and one of the primary care providers who will be involved in the project. Through discussion with the stakeholders, it was determined how the project will be implemented, how data will be collected, and what other support staff will be involved, such as IT and EHR support staff who will develop the EHR SDOH questions into a paper screen.

The second step is (D)o, and during this step the developed plan will be implemented (IHI, n.d.). Before implementation of the project begins, staff education will occur, so staff are informed of the new processes and their roles. See Appendix E for staff education example.

Additionally, the five providers, support staff, and registration staff will receive a four-item Likert survey regarding their familiarity and experience with screening for SDOH. Implementation will begin January 13th, 2025, and will run for six-weeks. Data will be collected and analyzed every two weeks using a spreadsheet that will be in a protected shared drive. Any problems that arise during the implementation process will be addressed and modifications will occur if necessary.

The third step is (S)tudy, which is when the data is analyzed and compared to the projected aims (IHI, n.d.). The data will be analyzed and used to determine further recommendations for improvement of SDOH screening processes. Providers, support staff, and registration staff will also receive the same Likert survey and results will be compared with pre-intervention results. Lastly, the final step is the (A)ct step. During this step, the processes will be refined based on what was learned in the third step (IHI, n.d.). Recommendations to improve further screening processes will be delivered to the stakeholders so they can integrate the changes into another future PDSA cycle.

Figure 1. Plan-Do-Study-Act (PDSA) Cycle of Quality Improvement Project



Methods

Intervention and Implementation

At the rural primary clinic, adult patients ages 18 and above will be screened at annual and new patient visits for SDOH using a screening form designed by IT support staff. Implementation of the screening will occur from January 13th, 2025, to February 24th, 2025, totaling six-weeks. Provider support staff will enter screening results into the EHR and providers will review results. If a patient screens positive for SDOH needs, they will be given a community resource list and referred to the clinic social worker. Data will be collected biweekly during the six-week implementation period.

Before implementation begins, staff education will occur through email and also informal in-person education. Education will consist of the SDOH facts and importance, SDOH screening workflow, how tracking will occur, and identification of roles during this process. See Appendix C for the Process Flowchart that will be given to staff. Staff education will occur sometime in December 2024-January 2025. To assess provider's, support staff's, and registrations staff's knowledge and experience with screening SDOH, a Likert survey will be given prior to implementation. Lastly, the same Likert survey will be given after implementation to assess improvements in knowledge and experience with SDOH screening. See Appendix B for Likert survey.

When adult patients arrive for annual or new visits, the registration staff will give patients the screening form to complete while waiting for the visit or they can finish the form in the exam room. The providers support staff such as the nurse or MA will obtain screenings from patients and enter results into the patients EHR. The goal is that 100% of patients scheduled for annual and new patient visits will be offered the SDOH screening. The providers will review screening results and any patient that screens positive will be given a community resource list and referred to the clinic's social worker. Referral will occur either by referring through the EHR or through secure message to the social worker in the EHR. The support staff will track patients being screened and the positive screens using a template that will be a secured shared drive that only staff will have access to. Lastly, the social worker will track the referrals sent for patients who screen positive using the tracking template. See Appendix D for tracking template.

Barriers or challenges that potentially could arise include patient's refusing to complete screening or patients inability to read and/or understand the questions. Patients have the right to

refuse to answer the SDOH screening questions and it will be documented in the template the reason for refusal. Additionally, there may be challenges with relying on staff to enter the screenings into the EHR or fill out the template. To address this, the DNP-S and stakeholders will discuss with staff the importance of tracking the screenings ultimately for patient outcomes. The only additional costs associated with this project are the printed materials needed, such as screening forms, resource list, and staff education materials. There are not any additional supplies, equipment, or staff that will be needed for the completion of this project.

Evaluation and Analysis

During each patient encounter, SDOH results will be entered into the computer and support staff will fill out the tracking template. See Appendix D for template. An EHR report will be developed regarding the number of annual and new patients for the five providers versus the number that were screened for SDOH. If unable to obtain an EHR report, manual chart audits will be conducted to determine the number of patients screened. Secondly, other data that will be collected includes: the number of positive screens and how many of those positive screens were referred to social services. This data will be collected biweekly by the DNP-S and site representative using the template and chart audits. Lastly, the Likert survey responses pre and post-intervention will be compared.

This first PDSA cycle will run from August 2024 to March 2025. Data analysis will be conducted between February 24th, 2025, to March 24th, 2025, using descriptive statistics. The data will be represented in percentages of SDOH screenings completed and percentages of positive screens that received referrals. Additionally, the Likert survey results will be analyzed using descriptive statistics. The analysis of data aligns with the project aims that 100% of

patients will be screened and 100% will receive a referral and community resource information if they have a positive screen. See Table 1. for smart goals. Based on the results, recommendations for improvements and modifications will be presented to the stakeholders for further data collection and potentially another PDSA cycle in the future.

Safety and Confidentiality

The safety and confidentiality of patients involved in the project is very important. It is of upmost importance that any personal identifiable information (PII) or protected health information (PHI) is secured, and only those involved in the project will access the data. The only PII that will be on the templates is patient initials, date of visit, and provider. This data will allow for easier tracking for support staff and for chart audits. The DNP-S will access the patient's EHR's to review screening results. The templates will be in a secured shared drive on the facility's computers that only staff who are involved, will have access to. Before any data leaves the facility for further analysis, it will be de-identified by erasing any PH or PII on the template. The project will be submitted to Montana State University's Institutional Review Board (IRB) to ensure no risk for patient safety or confidentiality and will require approval before implementation.

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Contribution of Authors and Co-Authors

Manuscript in Chapter 3

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Manuscript Information

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Implementation of a Social Determinants of Health (SDOH) Screening and Referral Process in a Primary Care Setting: A Quality Improvement Project

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Abstract

Background: It is estimated that 30-55% of adverse health outcomes are caused by unmet social determinants of health (SDOH) needs. These SDOH needs can include limited access to adequate housing, transportation, food, and utilities. Unmet SDOH needs are often correlated with lower socioeconomic status, which affects the approximately 12.5% of the United States population, who live below the poverty line. Screening and identification of unmet SDOH needs has shown promise and is vital to improving health outcomes.

Local Problem: The rural primary care clinic does not have a SDOH screening protocol or referral process in place. An electronic health record (EHR) report on SDOH screening was obtained from January 2024 to October 2024 for five primary care providers (PCP), showing that less than 5% (approximately 32 out of 2,582) of patients are being screened with nearly 0% receiving referrals.

Methods: Adult patients (e.g., 18-years and older) will receive an SDOH screening form from registration staff at check-in over a six-week study period. Screening forms will focus on housing, utilities, transportation, and food insecurity. The patient will complete the form while waiting for a visit or in the exam room with a nurse or medical assistant (MA). Screening results to be reviewed by provider and support staff enters results into the HER.

Interventions: Patients who screen positive for unmet SDOH needs will 1) receive a community resource list 2) referral to the social worker, and 3) have continued support from the social worker.

Results: A total of n=269 patients were eligible for screening and 89% (n=239) were screened. Of the n=239 screened, 7.9% (n=19) screened positive for either housing, food, transportation, or

utility needs. Of the n=19 positive screens, 42% (n=8) received a resource list and referral to the social worker. The SDOH screening rate prior to implementation was <5%, indicating a >80% increase in screening rates.

Conclusion: This project found that SDOH screening is feasible and effective in identifying patients with unmet SDOH needs through utilization of developed workflow, role identification, staff education, and utilization of the EHR.

Keywords: *social determinants of health, SDOH, screening, EHR, referral, quality improvement, primary care, adults*

Introduction

Social determinants of health (SDOH) are basic needs that have a major influence on one's ability to care for themselves and their health. SDOH include things such as access to housing, transportation, income, food, utilities, education, or employment (World Health Organization [WHO], 2024). Often unmet SDOH are correlated with lower socioeconomic status which further increases risks for poor health outcomes (e.g., heart disease, diabetes, obesity, and poor mental health) (Healthy People, 2024a). It is estimated that 30-55% of health outcomes (e.g., risk for chronic disease) are related to unmet SDOH needs (WHO, 2024). A goal of Healthy People 2030 goal is to address the impact of SDOH on health and to further improve health outcomes making SDOH needs a focus for many healthcare organizations (Healthy People 2030, 2024b). To identify people with unmet SDOH, screening tools exist and can be completed in clinical settings (Chen et al., 2020). Application of screenings in the clinical setting allow healthcare providers to identify individuals and provide resources to meet patient's needs for improvement in their care and overall health outcomes (Chen et al., 2020).

Clinical Problem

At a rural primary care clinic, there is no established process for SDOH screening and referral. As a recognized Patient Centered Medical Home (PCMH), the clinic must increase rates of SDOH screening to maintain recognition. An analysis conducted on SDOH screening rates between January 2024 to October 2024 found that less than 5% (approximately 32 out of 2,582) of adults ages 18+ were being screened for SDOH. Although the SDOH screening tool was already present in the electronic health record (EHR) platform for the clinic, it was not being utilized. Additionally, if screening was performed, there was no set process in place for screening or steps when a patient screens positive for unmet SDOH needs. With the current rates of screening being very low and the need to sustain PCMH designation, it was of upmost importance to the clinic to utilize an evidence-based screening in-house and create a referral process.

As discussed, individuals facing unmet SDOH needs often are of lower socioeconomic status and lack access to needed resources (Healthy People, 2024a). In 2023, it was reported that 11.7% of Montana's population was at or below the poverty level (Benson, 2024). Additionally, approximately 33% of Montana's residents reside in rural areas (Health Resources and Services Administration [HRSA], 2024). Rural residents often face additional barriers to accessing healthcare and services such as lack of transportation, long distances to travel, lack of health insurance, or low health literacy (Rural Health Information Hub [RHI], 2024a). Residents who are of lower socioeconomic status and residing in rural communities' have these barriers amplified, resulting in more unmet SDOH needs. Screening for social determinants of health (SDOH) at local clinics can identify patients facing barriers and unmet SDOH needs, allowing them receive support and access to services within their communities. It is anticipated that by

providing patients with access to resources, they can better care for themselves and any health conditions, resulting in improvement of health outcomes and quality of life in the long-term.

Literature Recommendations

A scoping review of the literature was completed to examine the evidence surrounding the effects of unmet SDOH needs on health outcomes, barriers to screening, facilitators to screening, and integration of the electronic health record (EHR) (Bleacher et al., 2020; Buitron et al., (2019); Bunce et al., (2023); Browne et al., 2021; Heller et al., 2021; Jones et al., 2022; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). Significant impacts related to poor mental and physical health are seen in individuals who have unmet SDOH needs (Bleacher et al., 2020; Heller et al., 2021; Jones et al., 2022). The literature also discussed increased healthcare costs when patients have unmet SDOH needs due to increased emergency and primary care utilization (Bleacher et al., 2020; Heller et al., 2021; Jones et al., 2022). Barriers to SDOH screening from providers and staff included time constraints, lack of understanding and experience with SDOH, and lack of available community resources (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). The development of SDOH screening processes and establishment of role identification is recommended to increase the health systems ability to identify and address the need of patients with unmet SDOH needs (Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). Additionally, to address the barrier of lack of resources, it is recommended that organizations network with community resources to increase access and availability of the resources to the individuals who would benefit most (Browne et al., 2021; Jordanova et al., 2024). The EHR can be utilized to create an effective screening and

referral process, as well as the potential to create reminders for screening and automatic referrals (Buitron et al., 2019; Bunce et al., 2023; Jordanova et al., 2024; Kostelanetz et al., 2022; Pinto et al., 2019). The findings from the literature shaped the development of an evidence-based SDOH screening and referral process ensuring its effectiveness and impact.

Conceptual Framework

The Institute for Healthcare Improvement (IHI) Model for Improvement was the conceptual framework utilized throughout this quality improvement (QI) project (Institute for Healthcare Improvement [IHI], n.d.). IHI's Plan-Do-Study-Act (PDSA) cycle was utilized in this QI project to identify the problem, develop the screening process, implementation, data analysis, and further recommendations. For this QI Project, the PDSA cycle was a total of six weeks in length, with check-ins every two weeks. During these check-ins, the DNP-Student (DNP-S) addressed questions or concerns from support staff, reviewed tracking logs, and collected data. The most recent findings were discussed with the site representative and social worker to address any gaps in screening or referrals. Any modifications to the process were discussed with support staff to ensure seamless integration. Friendly reminders were also provided to encourage staff to enter results accurately and refer patients to the social worker if they screened positive.

Aim

The aim of this QI project was to improve the process of recognizing patients with unmet SDOH through utilization of a developed workflow, role identification, staff education, and EHR utilization. The screening process includes identification of the patient with SDOH needs through a screening tool and if positive, the patient is provided with a community resource list and referred to the clinic social worker.

Methods

Context

As previously discussed, this clinic is a Patient-Centered Medical Home (PCMH) working toward maintaining its recognition by meeting an upcoming quality measure. One key requirement for sustaining this recognition is increasing SDOH screening rates, which has led to strong support from the clinic for this QI project. Key stakeholders in this QI project include two site representatives: (1) the Clinic's Chief of Clinic Operations (CCO) and (2) the clinic's social worker.

Problem identification began in August 2024 during a meeting with the CCO to discuss quality measures in need of improvement specific to this clinic. It was noted that SDOH screening questions were already embedded in the EHR and aligned with the Centers for Medicare and Medicaid Services (CMS) Accountable Health Communities Health-Related Social Needs Screening Tool (AHC HRSN) (CMS, n.d.) (see Appendix F). In October 2024, the DNP-S observed clinic workflow, including one of the five participating PCPs, and met with the clinic's social worker to discuss how social services would be integrated into the process. The DNP-S also observed the roles of registration and support staff, including medical assistants (MAs) and nurses, in conducting patient screenings during the rooming process. These staff members collect completed screenings at check-in, review them with providers, and enter the results into the EHR.

The clinic has 13 primary care providers (PCPs); however, due to time constraints of the QI project, only five were involved in this QI project—three physicians and two nurse practitioners (NPs). The clinic is affiliated with a critical access hospital recognized by CMS for

providing care to rural populations (RHI, 2024b). This affiliated hospital offers a range of specialty services, including oncology, pediatrics, urology, general surgery, obstetrics and gynecology, inpatient care, emergency care, and orthopedics. There was strong buy-in from both the clinic and stakeholders, as improving SDOH screening rates will not only help maintain PCMH recognition but also identify patients with unmet social needs, ultimately enhancing patient care.

Intervention

From the scoping review findings and recommendations, an evidence-based screening process was implemented, which included staff education, role identification, workflow improvement, and EHR utilization. Prior to screening implementation, staff education was completed through online (email) and in-person sessions. Two in-person education sessions were conducted, covering the following topics: 1) introducing the screening process, including education and workflow, and 2) clarifying the roles of support staff, with a focus on role identification and workflow. Staff education included facts on SDOH, the importance of identification, the SDOH screening process, EHR documentation, and data tracking (see Appendix C and Appendix E). Staff were given a Likert survey (e.g., scale of 1-5, limited to knowledge to proficient in SDOH) prior to education to assess their knowledge and experience with SDOH. The same Likert survey was administered following the implementation of education intervention to assess if learning had occurred (see Appendix B).

The target population for this project consisted of patients aged 18 and older who were scheduled for annual or new patient visits with any of the five primary care providers (PCPs). These patients were flagged for easy recognition as candidates to receive the SDOH screening

tool. The patients were given the SDOH screening form at check-in by registration staff and were instructed to complete the screening form while waiting for the visit or in the exam room. The support staff collected the screenings and reviewed the results with the providers. The support staff then entered the screening results in the EHR. If a patient had a positive screen, the support staff was to give that patient a community resource list and refer them to the clinic social worker through secure message. It should be noted that prior to screening implementation, the social worker could not receive referrals through the EHR. The social worker had been receiving referrals through secure message in the EHR, which was an effective referral process for this intervention. When the social worker was contacted on a positive screen, the patient's information was tracked on a flowsheet to ensure adequate follow-up with patients.

Measures

Data collection occurred from January 13th, 2025, to February 24th, 2025, using a tracking template created by the DNP-S for a PDSA cycle totaling six weeks (see Appendix D). During the staff education intervention, some participants expressed concerns about time management, citing the challenges posed by their already demanding workloads. Staff were particularly concerned with the time required to track all screened patients. To address this, the tracking template was modified to record only positive screens and whether the patient received a resource list and a referral to a social worker. The DNP-S completed bi-weekly check-ins with staff to discuss any concerns or questions regarding screening. The DNP-S provided ongoing reminders to staff about the importance of completing screenings during annual and new adult patient visits, as well as reinforcing the role of registration in distributing screening forms. Additionally, the DNP-S reviewed the tracking template and completed chart audits. Data from

the chart-audits was summarized and reported to the stakeholders. A comparison of the pre- and post- Likert survey responses was completed to determine if there was an increase of knowledge regarding importance of SDOH screening and the impact on health outcomes.

Analysis

Data collection was completed using a tracking template and chart audits. The DNP-S conducted chart audits bi-weekly to determine rates of screening and overall positive screenings. The data was analyzed using descriptive statistics to report percentages of patients screened out of the total eligible patients. Reporting of percentage of patients screened out of the total eligible patients and percentage of patients who received a community resource list and referral out of the total number of positive screens. Lastly, the Likert survey results were analyzed using Microsoft Excel for descriptive statistics to compare the pre- and post-implementation responses. The Specific, Measurable, Achievable, Relevant, Time-bound (SMART) goals of this project included: 100% of staff to receive education and Likert surveys, 100% of eligible patients screened, and 100% of positive screens receive a resource list and referral to the social worker.

Results

A total of 269 adult patients ages 18+ were scheduled for either an annual or new patient visit during the six-week implementation period. Of the n=269 eligible patients, 89% (n=239) of patients were screened and 7.9% (n=19) had a positive SDOH (e.g., housing, transportation, food, or utility need) screen. Of the n=19 patients that screened positive, 42% (n=8) were referred to the social worker and provided a resource list. See Table 2 for weekly screening rates

and Figure 2 and Figure 3 for bar graphs of percentages of patients screened and percentages of positive screens that received a resource list and referral to social services.

Table 2. Biweekly Screening Percentages & Total Percentages

	Number of eligible patients	**Screening documentation**	**Number of positive screens**	**Given resource list and referred**
Week 1-2	n=88	n= 81 (92%)	n= 8	n=3 (37.5%)
Week 3-4	n=101	n=89 (88%)	n=5	n=2 (40%)
Week 5-6	n=80	n=69 (86%) *2 documented refusals	n=6	n=3 (50%)
Total	n=269	n=239 (89%)	n=19	n=8 (42%)

Figure 2. Screening Percentage and Positive Percentage

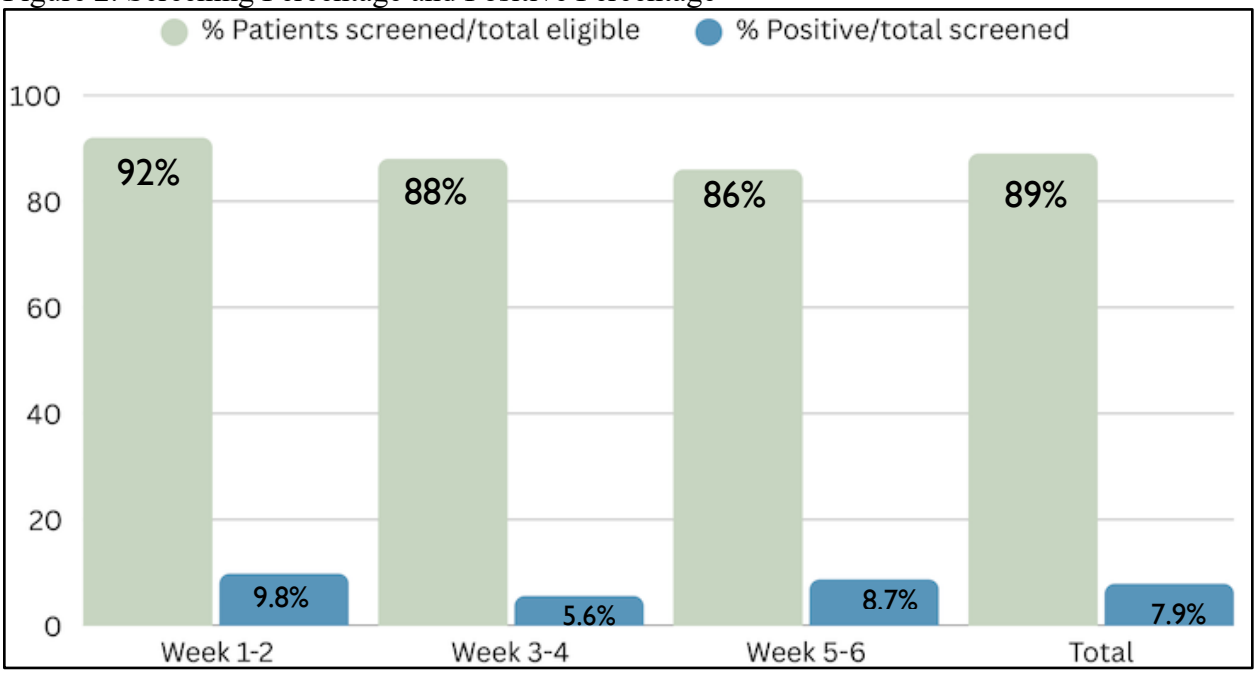
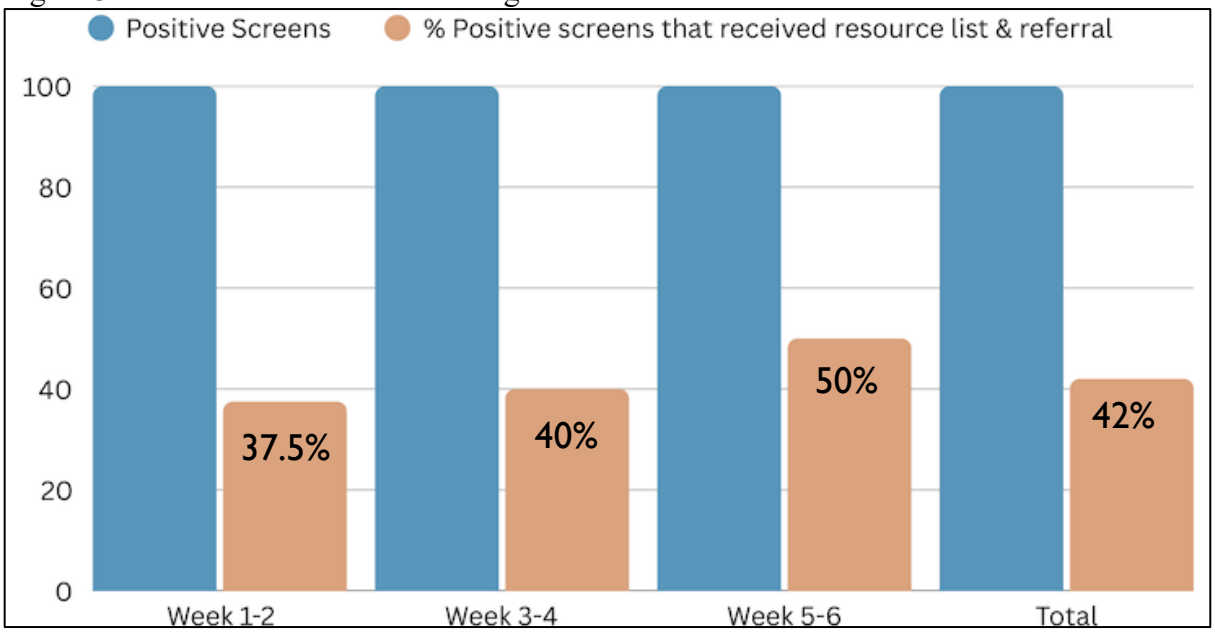


Figure 3. Positive screens and Percentage of resource list and referral



The remaining SMART goals included that all support staff and providers receive education and complete the Likert surveys through email and in-person education by January 10th, 2025. An email was sent out by December 18th, 2024, to all providers (n=5) and support staff (n=8) (see Appendix E). Two in-person education sessions were conducted on December 20th, 2024, and January 10th, 2025, with support staff. Support staff were included in these education sessions as they had the primary role in this screening process with collection of screenings and the input of results into the EHR. Support staff were provided with the tracking template (see Appendix D), process flowchart (see Appendix C), and other materials, such as charting in the EHR (see Appendix E).

There was 100% completion of the Likert surveys by support staff (n=8) and providers (n=5), pre- and post-implementation. The four question Likert survey was scored on a 5-point scale (see appendix B). An increase was observed in familiarity of SDOH and the effect of

SDOH on patient health outcomes among all staff (n=5 providers, n=8 support staff). Among the providers only (n=3 physicians, n=2 NP), an increase was seen in SDOH screening and referrals to social services. See Figure 4 and Figure 5 for Pre- and Post-Implementation for graphical depiction of Likert responses.

Figure 4. Pre-Implementation SDOH Knowledge All Staff Responses

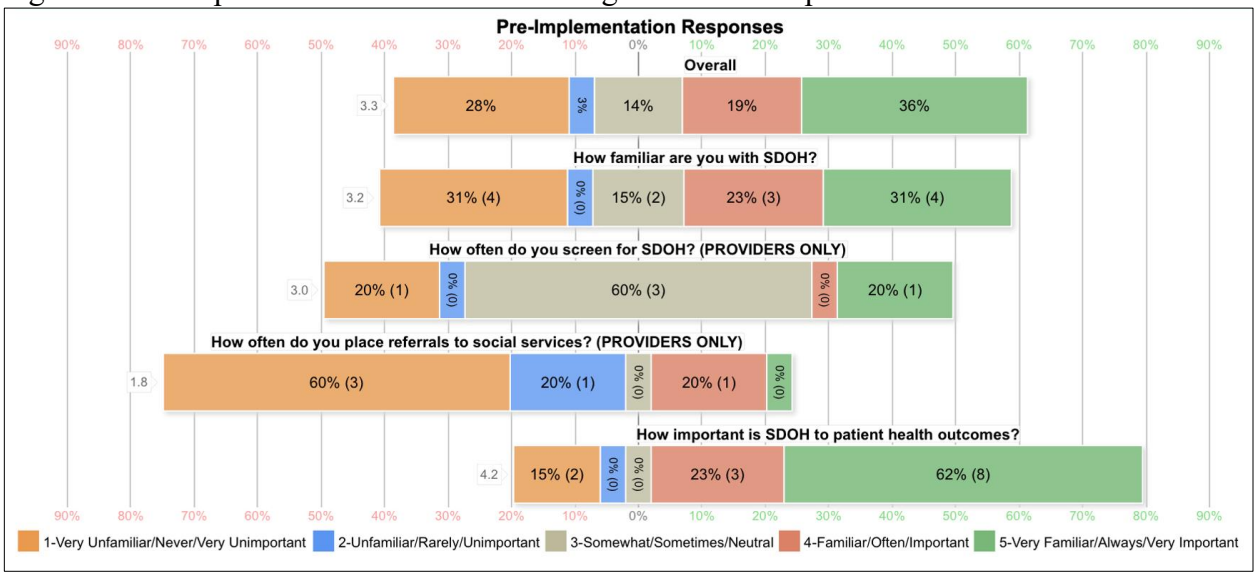
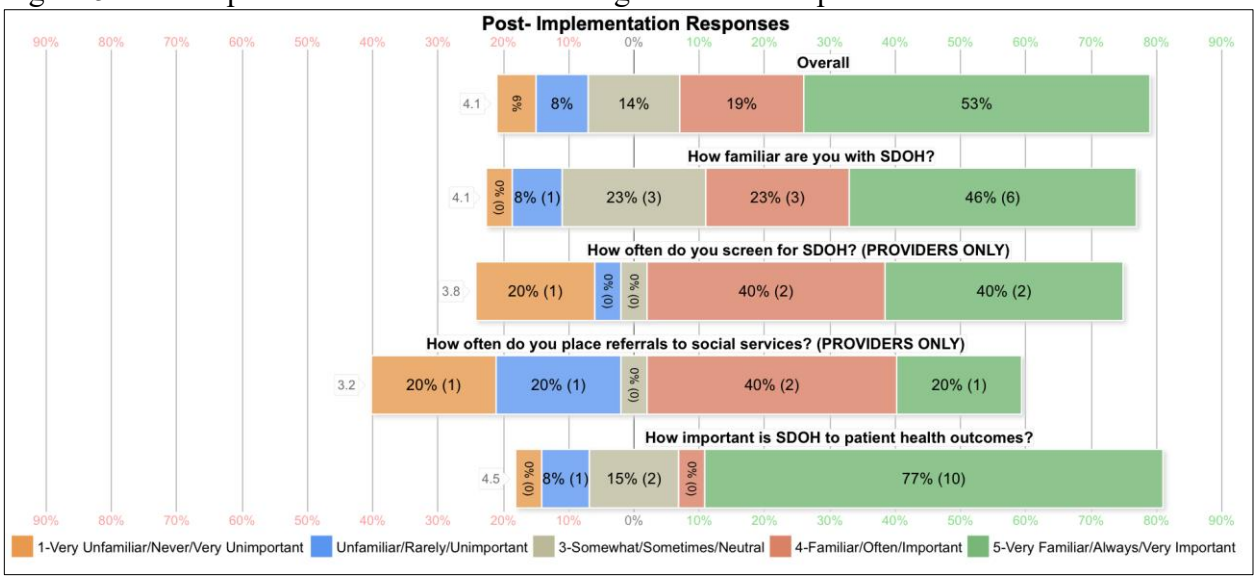


Figure 5. Post-Implementation SDOH Knowledge All Staff Responses



Discussion

The implementation of this QI project led to a substantial increase in SDOH screening rates, from less than 5% to 89% over the six-week period in patients presenting at the clinic for annual and new visits. This increase highlights the effectiveness of integrating structured screening processes into clinic workflows (Jordanova et al., 2024; Kostelanetz et al., 2022; Rudisill et al., 2023). Notably, refusals were minimal, with only two documented cases occurring in weeks five and six (see Table 2.). To improve screening rates, an EHR reminder can be implemented to prompt staff to screen eligible patients more consistently (Buitron et al., 2019; Pinto et al., 2019). Through EHR reminders, task burden and time constraints can be reduced, which can improve screening rates (Buitron et al., 2019).

Despite the success in increasing screening rates, the rate of positive screenings was relatively low at 7.9% (19 out of 239). One possible explanation is the presence of a local community health center (CHC), which likely serves patients with greater SDOH needs by

offering more affordable care options. Among the identified unmet needs, food insecurity was the most prevalent (12 out of 19 cases), followed by housing instability (7 out of 19), utility concerns (3 out of 19), and transportation barriers (2 out of 19). Three patients had two unmet SDOH needs and one patient had all four unmet needs (e.g., housing instability, transportation need, food insecurity, utility need). In 2022, it was estimated that 12.8% of households in the United States (U.S.) had food insecurity (Jordanova et al., 2024), which supports our findings of the higher rate of food insecurity being the most prevalent.

A key challenge in this project was the low referral rate, with only 42% of patients with positive screenings receiving referrals to the social worker. As previous screening rates were very low (<5%) prior this QI project, there was no baseline of referrals for comparison. It remains unclear whether patients who were not referred received a resource list or any additional support, as the tracking template was inconsistently used among staff. The referral process relied on support staff, who were responsible for reviewing screenings with providers and then initiating referrals via secure messaging. Given their numerous other responsibilities, time constraints and task overload may have contributed to lapses in documentation and referral completion. Similar projects discussed that time constraints are often a barrier to screening completion (Browne et al., 2021; Jordanova et al., 2024; Kostelanetz et al., 2022; Mizumoto et al., 2023; Pinto et al., 2019; Rudisill et al., 2023). In response, the DNP-S emphasized the importance of consistent referrals during bi-weekly check-ins and provided stakeholders with bi-weekly chart audit findings to keep them informed of the process. Additionally, the DNP-S personally shared positive screening data from audits with the social worker to help ensure patients received appropriate follow-up.

Feedback from support staff at the end of the implementation period was generally positive. They reported that the screening process was smooth and did not present significant workflow disruptions. Apart from the two documented refusals, there were no patient complaints regarding the screening form's length or content. One nurse mentioned a patient questioning why they received the resource list, prompting the DNP-S to clarify that staff should explain the list's purpose in a routine manner to patients. Utilization of resource lists is an effective way to educate patients on the available resources in their communities (Brown et al., 2021).

Although there was no formal referral order in the EHR for social work. The staff instead utilized the secure messaging system, which was efficient and easy to use for this process. They expressed no concerns about handling referrals instead of providers. However, a key suggestion for improvement was modifying the screening form to remove questions for which no local resources are available. For instance, staff were uncertain whether community resources existed for mold-related housing issues, raising concerns about offering assistance that may not be available (see Appendix F).

From the social worker's perspective, the referral process was effective, as staff-initiated contact via phone, secure messaging, or in-person referrals. However, the social worker noted that if this process were expanded to additional departments, additional personnel, such as another social worker or a dedicated case manager, would be necessary to manage follow-ups. Jordanova et al. (2024) discussed identifying a specific person that was devoted to SDOH and working with stakeholders and the community to improve processes and access to resources. It is recommended to utilize case managers as the dedicated role in addressing SDOH (Kostelanetz et

al., 2022). Establishing a specialized role focused on SDOH screening and follow-up could improve long-term sustainability and patient support.

Limitations

While this QI project successfully increased SDOH knowledge in the clinic, and screening rates of patients, several limitations impacted the process and results. One major limitation was the short project timeframe, which restricted the ability to track follow-ups and adequately address any staff concerns with the screening process. A longer duration would have allowed for monitoring whether patients with positive screens received appropriate resources and make adjustments to the screening/referral process as directed by staff input. Another limitation was patients either declining to complete the screening or that support staff did not consistently document results in the EHR, resulting in 11% of patients lacking screening data.

Involving only five providers may have limited the total number of data points. The selected providers had varying schedules over the six-week period which affected patient availability for screenings. Some providers had fully booked schedules while others did not, which may have influenced the generalizability of the findings. With a larger pool of eligible patients, the number of positive screenings could have been higher. Nevertheless, the sample size of 269 eligible patients over six weeks was sufficient for meaningful analysis.

Another limitation in this QI project occurred with the EHR and the lack of support for the social worker to receive referrals through the EHR platform. During this QI project this barrier was overcome by the support staff contacting the social worker via secure chat, a phone call, or an in-person visit. To improve the rates of positive screening referrals, a proper referral process in the EHR is needed. For future success of the referral process, there needs to be some

support provided to create the ability for providers to create the referral to the social worker via the EHR platform.

A limitation that was not identified until the final week of implementation was the existence of a feature in the EHR allowing support staff to mark when a screening was refused. This would have been beneficial for tracking patients that were not screened and whether or not they refused, or support staff did not input results. Despite the limitations discovered, there was a significant improvement in screening rates and the implementation was successful.

Recommendations

As this process was a new implementation, it provides many opportunities for continued improvements and further recommendations. Various barriers were discovered during the QI project that should be addressed for the future success of this SDOH screening and referral process. Continuing this SDOH screening process and integration into other departments, would require that a specific person or employee is assigned a role to continue with chart audits (role identification), until the screening and referral rates are adequate. Similar to the role of the DNP-S, a specific person (or champion) would continue with staff check-ins to identify and address any concerns. To address the barriers to referrals through the EHR, the facility should work on creating a referral process to the social worker (workflow). This would allow for better tracking of referrals, as well as follow-ups. Additionally, as Kostelanetz et al. (2022) discussed, integration of an automatic referral process could improve the processes as well. Currently in the EHR, when staff inputs results into the EHR and patients screen positive, the EHR marks them as either moderate or high risk for SDOH needs. The facility could work with EHR platform on

creating an automatic referral process that would refer patients to the social worker when they are flagged as moderate or high risk for SDOH needs.

As this process continues and expands into other departments, it may become necessary to hire an additional social worker or case manager to handle referrals from positive screens and provide follow-up support. This addition would enhance continuity of care, ensuring that patients' social determinants of health (SDOH) needs are met and that they receive timely access to resources. Future modifications to the screening form is recommended to remove answers related to mold and missing smoke detectors as there are currently no resources in the community to address these issues. As there was a patient that did not understand the purpose of the resource list, continuing to educate patients on the purpose of the screening forms, the resource list, and possible contact by the social worker is warranted. Lastly, continuing to educate staff and providers on the SDOH screening process as it continues to progress and improve. Integrating these changes into further SDOH screening and referral processes is recommended for continued improvement and increased patient support.

Conclusion

Overall, this QI project was successful, resulting in increased staff education on SDOH screening, improved patient screening rates, and better identification of patients with unmet SDOH needs. It was found that through utilization of evidence-based research, the development and integration of a SDOH screening and referral process is feasible and effective to identify patients with unmet SDOH needs. For sustainability of this QI process, continuing to educate staff, providers, and patients on SDOH will be essential. Additionally, improving the referral process through integration of automatic referrals in the EHR, role identification, and hiring an

additional social worker or case manager. As SDOH continues to emerge in importance through evidence-based research and Healthy People 2030 goals, patients can be identified and provided with access to resources to improve their quality of life and health outcomes.

CHAPTER FOUR

ADVANCED NURSING ESSENTIALS REFLECTION

Introduction

The advanced nursing essentials were developed by the American Association of Colleges of Nursing (AACN). Doctor of Nursing programs must integrate the eight essentials developed by the AACN into the curriculums (AACN, 2006). The AACN (2006) developed these essentials to prepare the DNP student to practice in any specialty or role. The essentials provided me with the knowledge and preparation to plan and integrate a quality improvement project in a rural healthcare setting. This chapter will discuss how each essential was utilized throughout Montana State University's (MSU), Doctor of Nursing Practice, Family Nurse Practitioner (DNP-FNP) program. A reflection and application for the DNP course will be discussed for each AACN essential.

Essential I: Scientific Underpinnings for Practice

Essential I discuss the integration of nursing practice with various other sciences such as analytical, psychosocial, and biophysical to improve care and healthcare outcomes (AACN, 2006, pp. 10). There were various courses throughout the DNP program that integrated the parts of essential I, such as both pharmacology courses, advanced pathophysiology, advanced health assessment, ethics, program planning, and the DNP Quality Improvement (QI) Project. Essential set the foundation for doctorate level nursing by providing us the knowledge and skills to assess patients, diagnose, and formulate treatment plans (AACN, 2006, pp.9). In the advanced health assessment course, we had the opportunity to simulate a comprehensive health assessment on a

family member, which taught us how to obtain subjective and objective information. The program planning course provided the basis of a QI project with problem identification, process planning, implementation, and outcomes assessment to integrate into the DNP QI project. The knowledge and skills I have obtained throughout the DNP program will translate into how I care for my patients and improve their health outcomes.

Essential II: Organizational and System Leadership for Quality Improvement and Systems Thinking

Essential II highlights the importance of leadership, identification of specific population needs, and the policies of budgets and finance (AACN, 2006, pp.12). The DNP program courses that integrated this essential included a finance course, advanced leadership, design of healthcare systems, DNP project, and the program planning course as well. In the finance and budget course, we designed a mock financial project proposal, which included a break-even analysis, contribution margin, and risk analysis. Understanding the impact of costs and how to be cost-effective will have an impact on the quality of care and outcomes (AACN, 2006, pp. 12). The leadership course provided us with opportunities to be in a leader and follower role through collaborating with classmates on various group projects. The program planning course and our DNP project integrated this essential through quality improvement development to improve patient safety and care. Lastly in the design of healthcare systems course we assessed various healthcare systems such as the pharmacy and lab. I developed a fishbone diagram of the pharmacy processes to determine contributing factors to the delay of medication delivery. I will integrate the knowledge I learned throughout these courses in improving care processes and reduction of healthcare costs.

Essential III: Clinical Scholarship and Analytic Methods for Evidence-Based Practice

Essential III is applied through the review of literature and the application of findings to new evidence and practices (AACN, 2006, pp. 13). Throughout my Evidence Based Practice I and II courses, this essential was utilized. In these courses, I learned how to identify a problem, develop a PICO question, review the literature, and apply the findings to practice and improve healthcare outcomes. I was able to apply what I learned in these courses into the development of my QI project to improve the process of screening for SDOH and helping patients receive access to social services. Additionally, this essential was integrated in my statistical applications course. I learned how to analyze data through various statistical tests and determining if results were statistically significant. I will take what I learned throughout these courses in applying evidence-based practice in my patient care.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Essential IV emphasizes the importance of using technology to improve patient care and outcomes (AACN, 2006, pp. 13). In the health informatics course, we learned how to apply informatics in our practice. We completed various discussions and assignments on how informatics can improve how we care for patients as well as any potential threats with technology, such as risks for breaches of confidentiality. We discussed the potential of artificial intelligence in healthcare and the implications for our future practice. Throughout my DNP QI project, technology has significantly been utilized. The electronic health record (EHR) system has been used to track SDOH screening rates and to improve the referral process to social

services. I will continue to integrate technology and enhance my knowledge on how I can improve my patients care and outcomes with technology.

Essential V: Health Care Policy and Advocacy in Health Care

As healthcare professionals, it is essential to understand policy and be advocates in our patient's care. Essential V emphasizes the influence of policy on healthcare delivery, costs, reducing disparities, and improvement of healthcare (AACN, 2006, pp. 14). In the ethics, law, and policy course we learned how to be advocates for our patients and also in policy. We had the opportunity to write an advocacy letter to a senator or administration of a hospital. I chose to write an advocacy letter to a chief clinic nursing officer (CNO) from a local hospital regarding the nothing by mouth (NPO) policy for surgical patients. I presented the evidence-based research regarding the American Society of Anesthesiologists (ASA) guidelines regarding the recommending fasting period of 2 hours. I advocated for the revision of the current facilities NPO after midnight policy and the potential adverse effects of prolonged NPO such as dehydration or hypoglycemia. As a future NP, I will continue to advocate for my patients and policy change that will improve the delivery of care and treatment.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Interprofessional communication is imperative in healthcare to manage the complex healthcare system and adequately care for patients (AACN, 2006, pp. 16). Throughout the DNP program, many courses involved collaborating with classmates or other students from different programs. In the healthcare informatics, I had the opportunity to work with dietitian students on various group projects. Additionally, throughout the course of my DNP QI Project, I have

collaborated with various stakeholders from the facility and staff including the nurses, medical assistants, and registration staff. With collaboration, we have developed a SDOH screening and referral process to recognize patients with unmet SDOH needs. Unmet SDOH needs can affect patients' ability to care for their health needs. The goal of recognizing patients with unmet SDOH is that they will be better able to care for themselves and improve health outcomes.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Essential VII focuses on public health and the prevention of disease and illness of certain populations or groups of individuals (AACN, 2006, pp. 17). In the vulnerability and healthcare in diverse communities' course, I had the opportunity to pick a vulnerable population and spend time shadowing and learning about the health disparities of a certain population. My group and I focused on children with disabilities in rural communities, as this population is at significant risk for adverse health outcomes, maltreatment, and comorbidities. This course was significant to my DNP education to identify populations at risk and how we can advocate and use our available resources to improve their access to care and health outcomes.

Lastly, my DNP QI project focused on identifying patients with unmet SDOH needs, so they can be provided with access to resources. For example, patients who are unable to afford utilities will be provided with information and assistance on filling out the Low-Income Home Energy Assistance Program (LIHEAP). If patients are unable to make it to appointments due to lack of transportation, they will be provided with information on transportation services. The DNP project taught me how to identify and assess a practice problem and develop a process to improve patient care and outcomes. As a provider, I will continue to identify populations at risk to prevent and reduce illness and improve worldwide health outcomes.

Essential VIII: Advanced Nursing Practice

Essential VIII embodies advanced nursing practice and the integration of various sciences such as psychosocial, cultural, nursing, and biophysical sciences (AACN, 2006, pp. 117). Through completion of all didactic courses and the various clinical rotations in different specialties this essential was met. I completed clinical rotations in the clinical setting, such as primary care, geriatrics, pediatrics, and women's health. I also completed rotations at a community health center. During the clinical rotations, I would obtain the history of present illness (HPI) and complete a physical exam on patients. I would then discuss the findings with my preceptor and possible differential diagnoses and develop a plan of care. The didactic coursework and clinical rotations set the foundations for me as a DNP prepared NP. I will continue to learn and expand my knowledge on the most current evidence-based guidelines that will translate into improved health outcomes, reduced healthcare costs, and quality patient care.

Conclusion

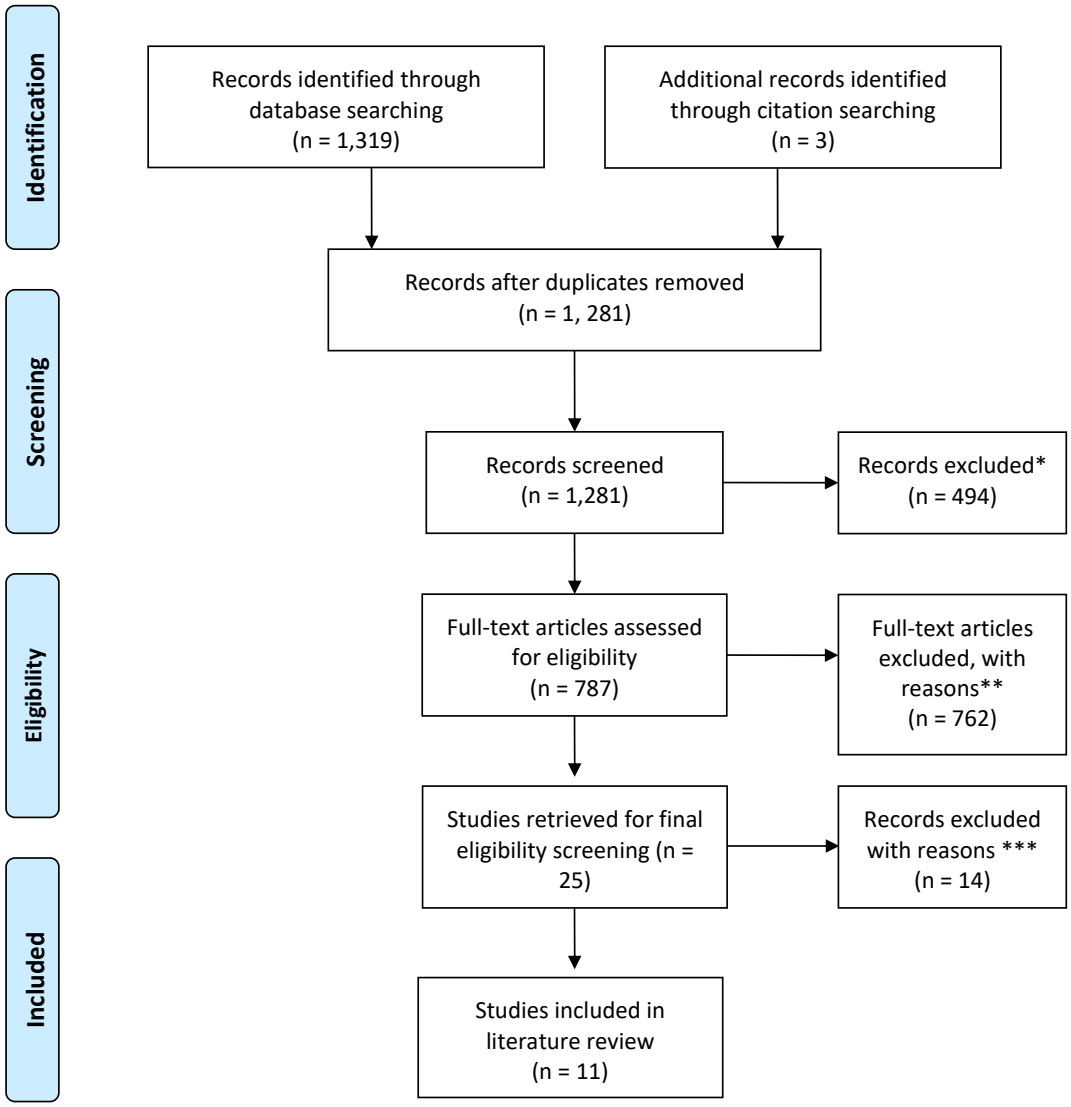
As discussed throughout this reflection, Montana State University's DNP-FNP program integrated all eight essentials from scientific underpinnings to advanced nursing practice through the various didactic coursework and clinical requirements. The program has provided me the opportunity to gain knowledge and skills to provide safe quality care to my future patients as a NP. I feel prepared and competent that I can utilize my knowledge and resources to provide my patients with education and treatment to improve their health and quality of life. I am looking forward to beginning my new career, and I am grateful to have chosen MSU to further my nursing education.

APPENDICES

APPENDIX A

PRISMA DIAGRAM OF LITERATURE

Figure A1. PRISMA Diagram



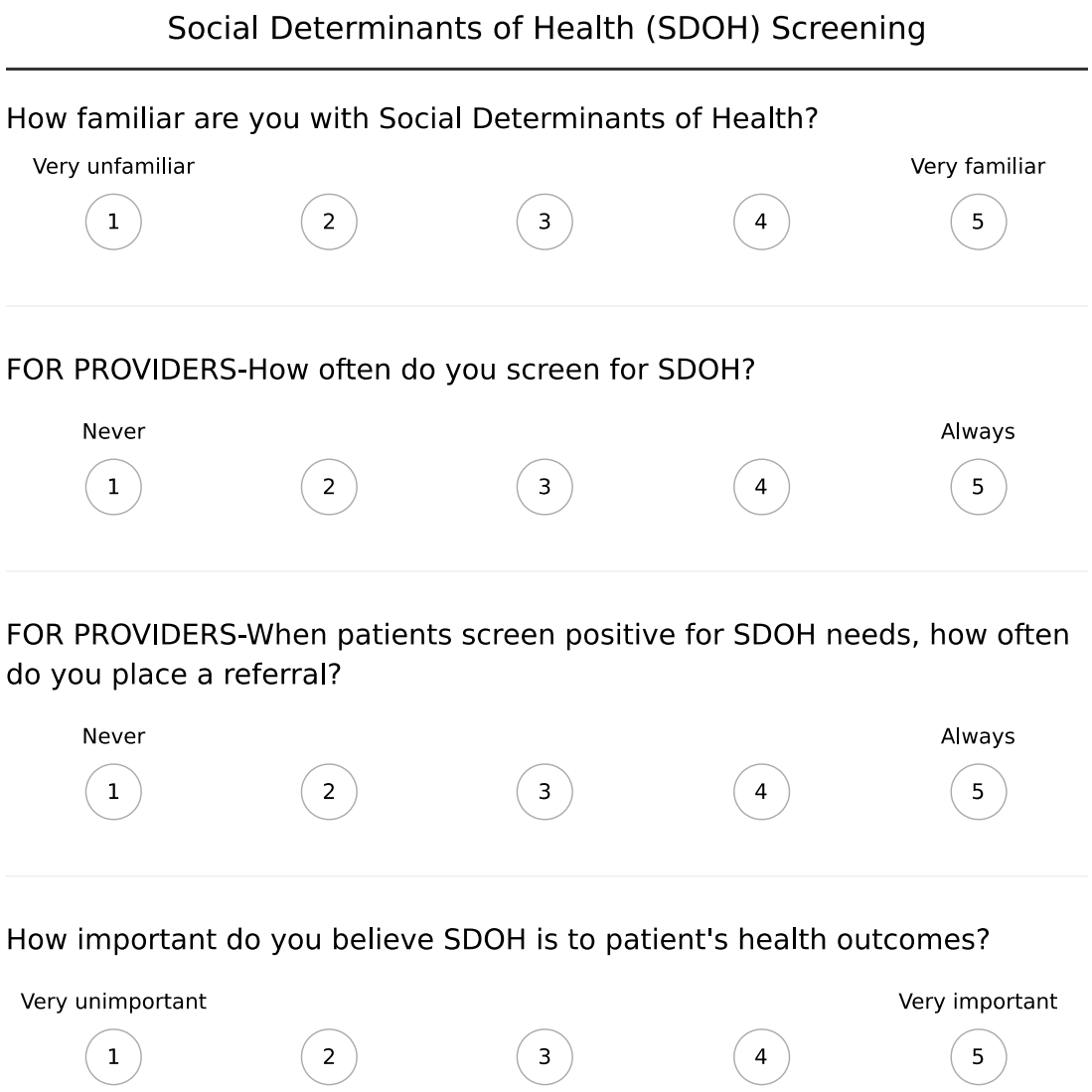
* Indicates records excluded through abstract and title screening by primary examiner
** >5-year publication date (01/01/2019), setting isn't based or applicable to primary care, study population is solely pediatrics, not published in English
*** Exclusion of integrative, systematic, and scoping reviews for final eligibility screening

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

APPENDIX B

LIKERT SURVEY

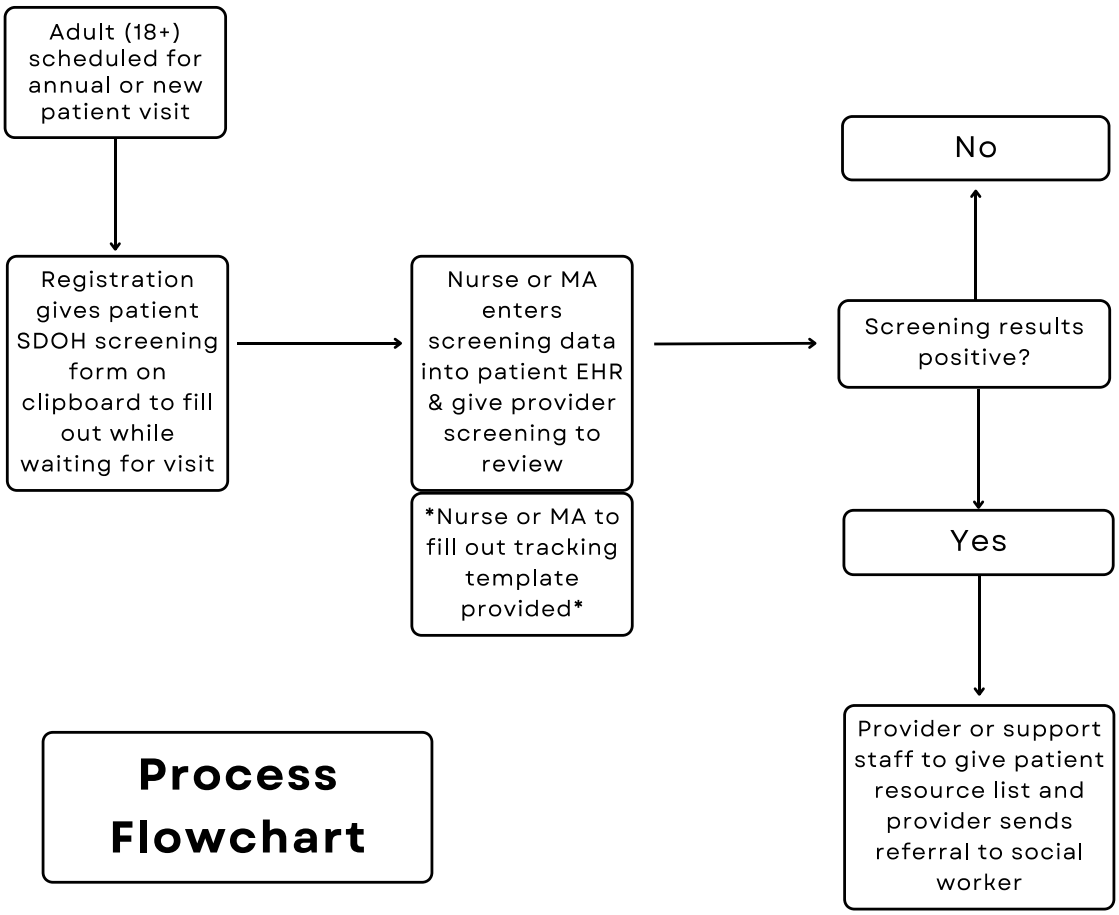
Figure B1. Likert Survey



APPENDIX C

PROCESS FLOWCHART

Figure C1. Process Flowchart



APPENDIX D

TRACKING TEMPLATE

Table D1. Tracking Template

Social Determinants of Health (SDOH) Data Tracking					
Date & Provider	Patient Initials	SDOH screening completed & entered into EHR **(Y/N)** ***If no please indicate why (Ex: patient refused)**	Positive screen **(Y/N)**	Given resource list & referred to social worker **(Y/N)**	Referral received by social worker **(Y/N)**
Example: 1/16/25 Reed	A.A.	Yes	No	NA	NA

APPENDIX E

STAFF EDUCATION

Hi everyone,

My name is Ellie Wilkinson, I am a DNP-FNP student through MSU. I also currently work per diem over at the surgery department! To fulfill my requirements for my program, I am required to complete a Quality Improvement Project. Screening for SDOH is an emerging practice, but is very important for patients and their health outcomes that their SDOH needs are addressed.

What are SDOH?

- Essential needs such as housing, income, education, transportation, and food (World Health Organization [WHO], 2024).
- Without adequate SDOH, it affects patient's ability to receive access to healthcare services or take care of their complex health needs (Chen et al., 2020).
    - Leading to worsening comorbidities and health outcomes (Chen et al., 2020).
- According to the WHO, between 30-55% of health outcomes can be attributed to a patient's unmet SDOH needs (WHO, 2024).

Project Aims: To improve the rates of SDOH screening, as well as the process of referral to social services and eventual follow-up. The goal is that 100% of patients are screened for SDOH and 100% who screen positive are referred.

Implementation of SDOH screening into your workflow

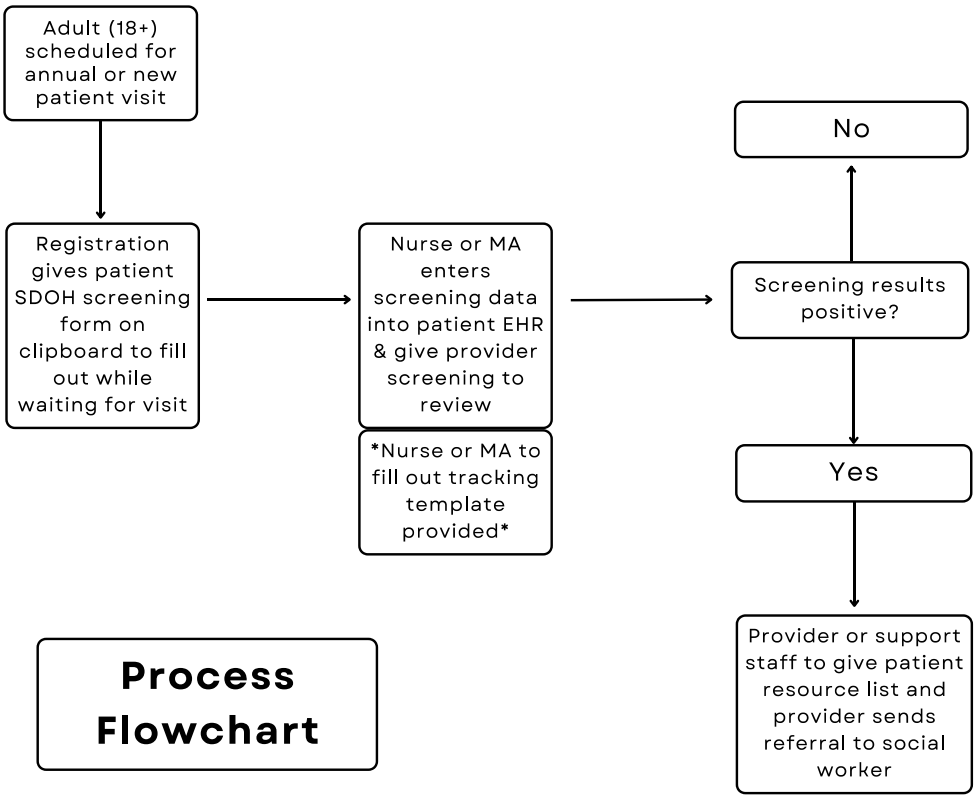
- The pilot period will run from January 13th, 2025- February 24th, 2025
    - I will be coming by every 2 weeks to collect data and discuss if there are any challenges or concerns that need to be addressed.
- Registration staff will be given a stack of SDOH screenings.
    - Any adult patient ages 18+ who are scheduled for annual OR new visits will receive the screening at check-in
- The patient will fill out the screening while waiting to be pulled back into visit or can complete in exam room.
- Nurse or MA will obtain completed screening and enter the results into the patient's EHR (see attachment for entering into EHR)
- Nurse or MA also will fill out template provided (see attachment)
    - Will mark if screening was completed, results, and if there was a referral
- Provider to review screen (either the one patient filled out or the results in the EHR)
- If patient screen's positive (see attachment as to what responses indicate a positive response) the patient will be given a community resource list and referred to Amanda Gulke
    - ****ANY response that indicates a Positive= is a positive screening form and needs a community resource list and referral**
- Social worker to track referrals received and initiate follow-ups.

I want to thank everyone for your participation and willingness to help me in completing this project. If you have any questions, please feel free to send me an email.

I will also be doing some informal education to providers and support staff as well, so any questions can also be asked in person.

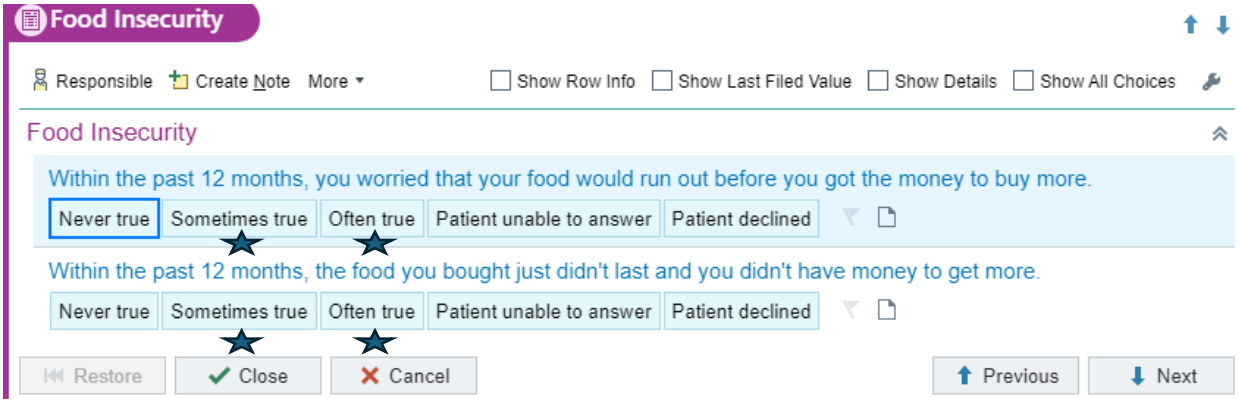
Thank you,
Ellie Wilkinson
MSU DNP-FNP student

This is an example of the change in workflow that will occur during this 6-week pilot period.

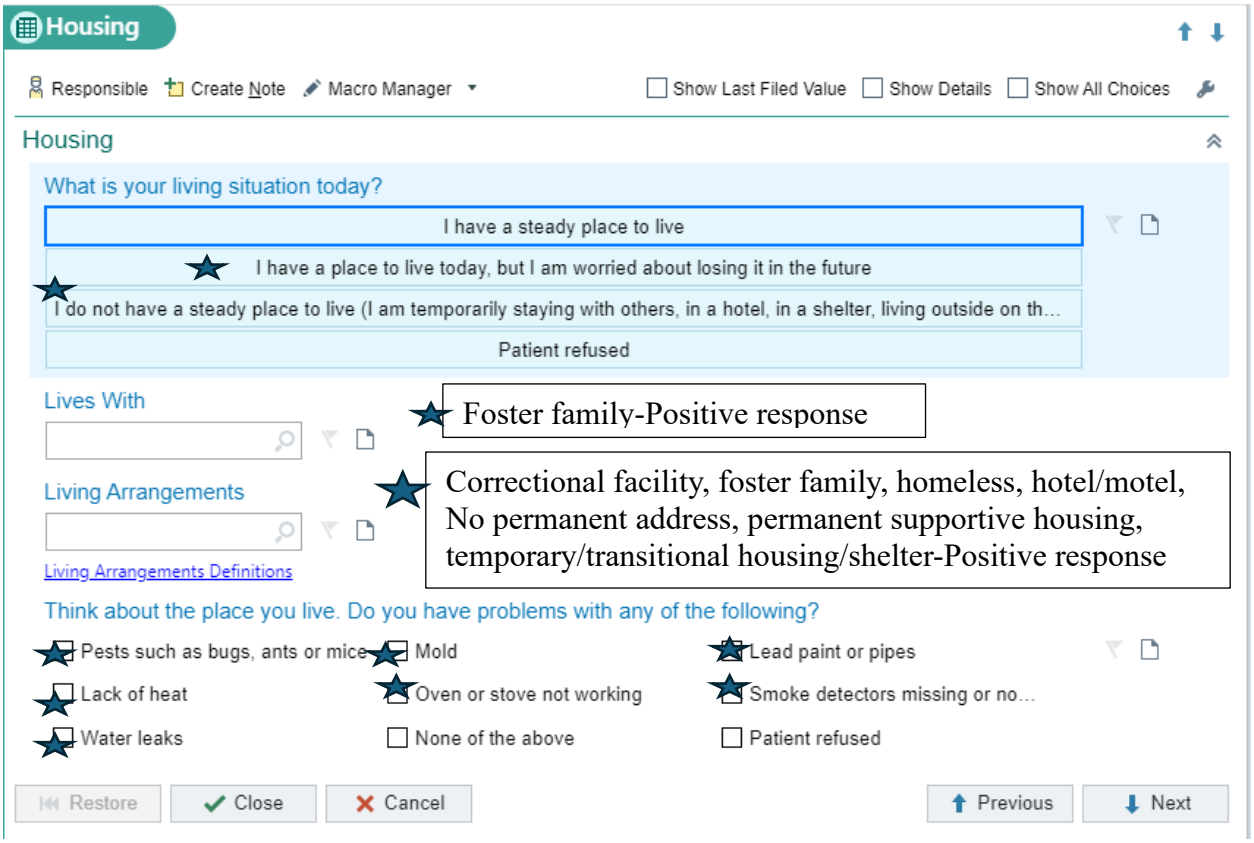


EPIC Screening Tabs:

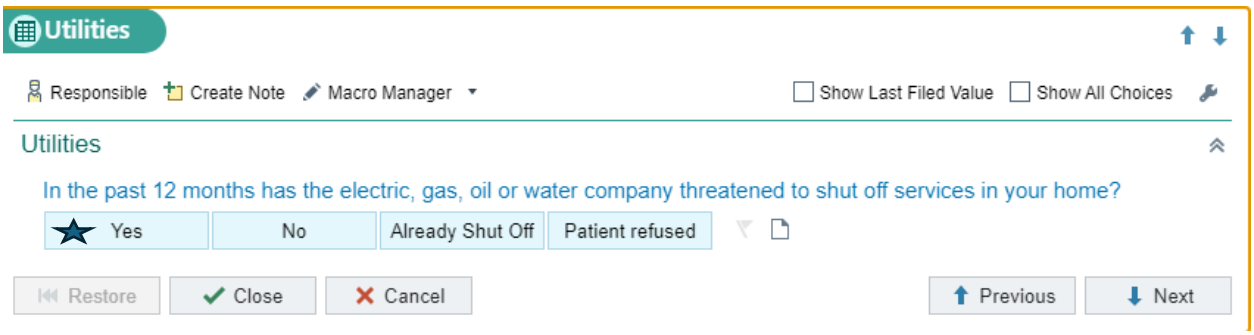
Please use the "Food Insecurity" "Housing" "Utilities" and "Transportation Needs" tabs in the patient's EPIC.
These tabs can be found by going to the "History" tab in the EHR.



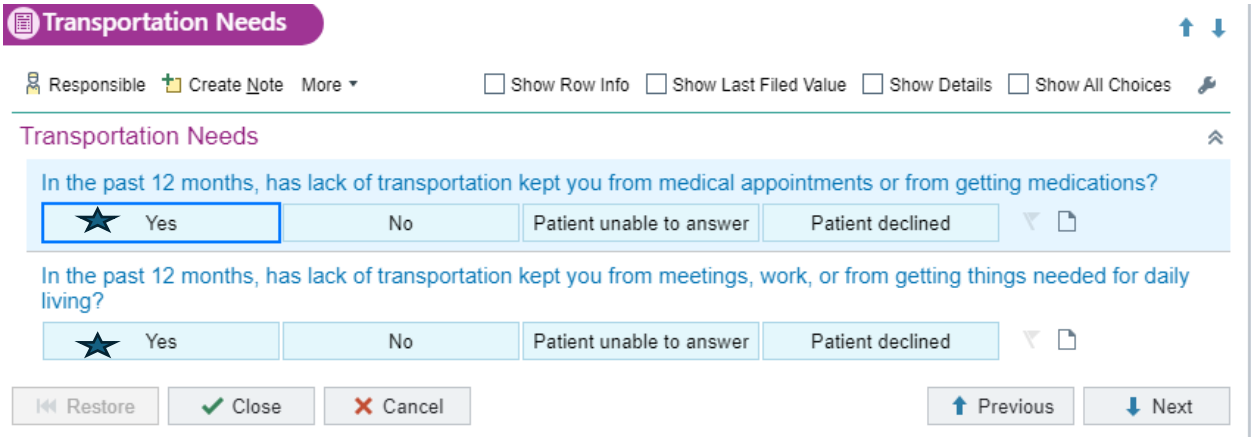
****Sometimes True or Often True Indicates a Positive Response**



**** Positive screening**



***YES indicates a positive response**



***YES indicates a positive response**

Social Determinants of Health (SDOH) Data Tracking					
Date & Provider	Patient Initials	SDOH screening completed & entered into EHR **(Y/N)** ***If no please indicate why (Ex: patient refused)**	Positive screen **(Y/N)**	Given resource list & referred to social worker **(Y/N)**	Referral received by social worker **(Y/N)**
Example: 1/16/25	A.A.	Yes	No	NA	NA

APPENDIX F

SDOH SCREENING FORM

Figure F1. SDOH Screening Form

Food Insecurity

Within the past 12 months, you worried that your food would run out before you got the money to buy more.

❑ *never true* ❑ *somewhat true* ❑ *often true* ❑ *unable to answer* ❑ *declined*

Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.

❑ *never true* ❑ *somewhat true* ❑ *often true* ❑ *unable to answer* ❑ *declined*

Housing

What is your living situation today?

❑ *I have a steady place to live.*

❑ *I have a place to live today, but I am worried about losing it in the future.*

❑ *I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street,*
on a beach, in a car, abandoned building, bus or train station or in a park

❑ *Refused*

Lives with:

❑ *alone* ❑ *child(ren), adult* ❑ *child(ren), dependent* ❑ *facility* ❑ *father* ❑ *father and partner* ❑ *foster family*
❑ *friend(s)* ❑ *grandparent(s)* ❑ *host family* ❑ *legal guardian* ❑ *mother* ❑ *mother and partner* ❑ *parent(s)*
❑ *sibling(s)* ❑ *stepfather* ❑ *stepmother* ❑ *significant other* ❑ *spouse* ❑ *other relative(s)*_____
❑ *other* _____

Living Arrangements

❑ *adult family home* ❑ *apartment* ❑ *assisted living* ❑ *condominium* ❑ *correctional facility* ❑ *foster care*
❑ *group home* ❑ *homeless* ❑ *hotel/motel* ❑ *house* ❑ *independent living facility* ❑ *long term care facility*
❑ *LTACH (long term acute care hosp)* ❑ *memory care* ❑ *mobile home* ❑ *no permanent address*
❑ *permanent supportive housing* ❑ *residential facility skilled nursing facility* ❑ *temporary/transitional housing/shelter*
❑ *other*_____

Think about the place you live. Do you have problems with any of the following?

❑ *pests such as bugs, ants or mice* ❑ *mold* ❑ *lead paint or pipes* ❑ *lack of heat* ❑ *oven or stove not working* ❑ *smoke detectors missing or not working* ❑ *water leaks* ❑ *none of the above* ❑ *refused*

Utilities

In the past 12 months has the electric, gas, oil or water company threatened to shut off services in your home?

❑ *Yes* ❑ *No* ❑ *Already Shut Off* ❑ *Refused*

Transportation

In the past 12 months, has lack of transportation kept you from medical appointments or from getting medications?

❑ *Yes* ❑ *No* ❑ *Unable to Answer* ❑ *Declined*

In the past 12 months, has lack of transportation kept you from meetings, work or from getting things needed for daily living?

❑ *Yes* ❑ *No* ❑ *Unable to Answer* ❑ *Declined*

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