Social Determinants of Health Screening and Referral Program in an Academic Primary Care Clinic: A Quality Improvement Project

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Abstract

Background: Screening for social determinants of health (SDOH) is critical to meeting the needs of patients and accounts for 30-55% of health outcomes. This indicates overall health is influenced by social factors in addition to healthcare and lifestyle. Screening and addressing SDOH allows healthcare providers to improve health outcomes by promoting healthy lifestyles, advocating for equity, and lowering healthcare costs. **Methods**: In an academic adult primary care clinic, the SDOH screening process has not been updated since 2016. Screenings were completed 50% of the time and subsequent referrals were not tracked. During this 12-week quality improvement project, the clinic received education, training, and standardized workflow to screen and refer patients. The Donabedian model and the Plan-Do-Study-Act model were used to guide this project. The American Academy of Family Physicians Social Needs Screening Tool was built within the electronic health record for data collection. **Results**: The average SDOH screening completion rate improved to 73% and referrals were able to be captured. **Conclusions:** Education and training on the standardized workflow for SDOH screening and referrals resulted in an increase in patient screening and tracking referrals to community resources.

Keywords: social needs, social determinants of health, SDOH, screening tool

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To provide quality healthcare, a patient's medical and social needs must be addressed. These social needs are often referred to as social determinants of health (SDOH). According to the World Health Organization (WHO, 2022), health outcomes are influenced by SDOH including the conditions in which people are born, grow, work, live, and age. Over the past several years, healthcare systems identified an increasing need and responsibility to address SDOH to mitigate costs to healthcare systems and improve health. From 2017 to 2019, United States healthcare systems invested $2.5 billion in SDOH-related initiatives (Horwitz et al., 2020). Healthcare systems are investing in SDOH to mitigate costs and improve health. Taylor et al. (2016) indicated how addressing certain SDOH can promote positive effects on health outcomes and lead to a reduction in healthcare spending. The purpose of this project was to standardize the process in which healthcare providers identify and address social determinants of health in a midwestern academic primary care clinic. The evidence-based research identified the effectiveness, adoption, and implementation efforts surrounding this SDOH initiative.

Background

According to the WHO (2022), social determinants of health account for 30-55% of health outcomes, indicating overall health may be influenced more by social factors rather than health care or lifestyle choices. There are many SDOH categories to consider when addressing this important topic. According to the Centers for Disease Controls and Prevention (CDC, 2021), addressing the following and providing resources for each can enhance the quality of life and influence health outcomes on individual and population levels:

- safe and affordable housing

- access to education
- public safety
- availability of healthy foods
- local emergency/health services
- environments free of life-threatening toxins

By addressing SDOH, providers improve patient outcomes by reducing illness, promoting healthy lifestyles, and advocating for societal equity (WHO, 2022). In addition, *Healthy People 2030* highlights the importance of addressing SDOH by including "social and physical environments that promote good health for all" as one of the four overarching goals for the decade (Office of Disease Prevention and Health Promotion [ODPHP], n.d., para. 4). In the United States, one in ten people live in poverty which limits their ability to purchase healthy food and hinders their access to health care, safe housing, and fair education (ODPHP, n.d.). Although poverty is only a single social determinant of health, addressing this issue may positively impact a multitude of patient outcomes.

In 2017, Deloitte Center for Health Solutions issued a survey to 284 hospitals nationally to identify efforts addressing SDOH and found screening for SDOH was occurring in only 77% of outpatient settings compared to 90% screening on the inpatient side (Lee & Korba, 2017). These healthcare organizations face the challenging decision of where to allocate their efforts. SDOH-related resources focused on the inpatient and high utilizers ahead of outpatient interests. In addition, organizing and initiating resources and interventions to address SDOH needs were identified in only 73% of outpatient settings compared to 86% on the inpatient side (Lee & Korba, 2017). There is a need to improve efforts in the outpatient setting to screen, address, and direct resources and interventions regarding SDOH. Of the total 88% who reported screening

patients for social needs, only 62% of these were screened systematically (Lee & Korba, 2017). It is not enough to only screen a patient for needs, there must be a structured way to refer and link the patient to appropriate resources to meet their needs. Not doing so has been identified as not only ineffective but unethical as well (Perrin, 1998). Only 30% of the hospitals reported having a formal relationship with community-based providers and resources for their entire target population (Lee & Korba, 2017). This prompts the need to implement referral systems to link patients to address the identified unmet needs.

Due to the utilization of different tools to collect the same information and not effectively communicating results, duplicate efforts from the staff standpoint occurred and duplicate responses were documented in the patient's chart (Lee & Korba, 2017). This identifies a need to streamline and standardize the screening process and tools utilized. In addition, directing resources or interventions were done on a more ad hoc/occasional basis for over half of the participating hospitals (Lee & Korba, 2017). As staff and providers asked more questions about a patient's social environment, they found other areas to address. Of the facilities participating in the survey, 25% stated there was no well-defined process for connecting people and social needs resources, 38% do not have a way to measure outcomes or results from social needs activities, and 26% do not have formal relationships with community-based providers (Lee & Korba, 2017).

By utilizing a SDOH screening tool, priority needs can be identified, and efforts placed on meeting these needs. The Deloitte survey responses identified the social needs being addressed the least were transportation at 50%, utility needs at 39%, and employment/income at 36% (Lee & Korba, 2017). Similarly, patients who identified a need in one of these three categories also had the least number of referrals placed for that need (Lee & Korba, 2017). The

need to identify the benefits of SDOH screening and promoting the implementation of this program has also been identified. Linking positive outcomes to the initiative may result in better compliance and participation. Over half of the respondents reported they would invest more effort in addressing social needs if there was evidence supporting improved outcomes (Lee & Korba, 2017).

Significance

According to the American Medical Association (2016), implementing an SDOH program can be complicated, and it is recommended to first select a population of focus. At this midwestern academic primary care clinic, a standardized process was not in place to screen patients for SDOH. In addition, the referral process for SDOH resources was fragmented and not consistently utilized. Prior to this project, only 50% of patients were screened at least annually for SDOH. Lastly, providers and staff had not been educated on this initiative in over five years.

The clinic services around 4,000 adult patients in the community. Not addressing SDOH may leave these patients at higher risk for developing certain health issues. Gomez (2017) identified how housing complications can contribute to major or minor depression, anxiety attacks, fair/poor self-rated, health, and harmful or hazardous alcohol use (Gomez, 2017). In addition, according to Berkowitz et al. (2016), social needs are an inevitable part of a patient's life and so should they be for the business of health care. This study identified unmet social needs are linked with:

- nearly twice the rate of depression
- 60% higher prevalence of diabetes
- greater than 50% higher prevalence of high cholesterol and elevated glycated hemoglobin (HbA1c)

- greater than double the rate of emergency department visits
- greater than double the rate of no-shows to clinic appointments (Berkowitz et al., 2016)

Failing to address and influence disparities related to SDOH in this population may also lead to higher medical costs, especially in patients with identified disparities or those considered more diverse. According to Ndugga & Artiga (2021, para. 11), "disparities amount to approximately $93 billion in excess medical care costs and $42 billion in lost productivity per year as well as additional economic losses due to premature deaths." SDOH can also play a factor in mortality rates. An analysis of studies measuring adult deaths attributable to social factors found:

- Approximately, 245,000 deaths in the United States in 2000 were attributable to low education, 176,000 to racial segregation, 162,000 to low social support, 133,000 to individual-level poverty, 119,000 to income inequality, and 39,000 to area-level poverty. (Galea et al., 2011, para. 16)

In 2020, a survey was conducted in the county where the clinic was located and identified 15.1% of respondents had mental health problems, 7.1% lacked physical activity, and 7% had poor access to healthy and nutritious food (Healthy!CapitalCounties, 2021). In addition, the top barriers to getting quality healthcare in the county were identified and 17.9% stated cost was a factor, 15.2% stated it was difficulty navigating the healthcare system, and 14.7% stated finding a practice that accepts new patients was a barrier (Healthy!CapitalCounties, 2021). Of the respondents, 60.3% agreed addressing social needs was as important as addressing medical needs to improve community health but only 58.3% felt they had access to the resources they needed to stay healthy (Healthy!CapitalCounties, 2021). According to the 2020 Michigan Primary Care

Needs Assessment (2020), the county had lower scores in the annual median income, population below 100% and 200% of the Federal Poverty Level (FPL), and food insecurity compared to the average for the entire United States. The county also had a higher population with a disability at 13% compared to 12.6% in the United States. Unemployment and eviction rates were slightly better than the United States average at 3.6% and 2% respectively.

Root Cause Analysis

A root cause analysis was completed utilizing a Fishbone Diagram (see Appendix A). The six categories identified within the needs assessment were patient, staff, providers, method, information technology (IT)/technology, and policy/procedure. The clinic lacked a defined SDOH policy and procedure. In addition, the screening tool and workflow were outdated. Training for staff and providers, along with potential resistance to change were identified as potential barriers and contributing factors. The goal of this project was to see an increase in the number of patients screened and connected to resources because of the new screening tool, screening and referral workflow, and training for providers and staff.

Problem Statement

This clinic did not have a structured process to screen for SDOH and appropriately refer to resources. Consistently addressing SDOH can improve health outcomes but failing to have a structured process prevents patients from identifying their social needs and restricts providers from connecting patients to resources and support. What evidence-based strategies can be utilized to successfully implement a structured SDOH screening and referral program in an adult academic primary care clinic?

Theoretical Framework

The theoretical framework guiding this project was the Donabedian model for quality of care (see Appendix B). This framework is broken out into three concepts: structure, process, and outcomes that are foundational to any quality improvement (QI) project (McDonald et al., 2007). This model simplifies how to successfully implement quality initiatives in three short steps that coincidentally affect each other. Change will not be successful unless all three concepts are appropriately addressed.

The structure of this framework refers to the setting and organizational characteristics. Contributing factors to the structure were staffing, equipment/supplies, and determining if there was a cost associated with this project. The setting was an adult academic primary care clinic with a 22% Medicaid and 46% Medicare population. There were nine medical doctors (MD), one nurse practitioner (NP), one registered nurse care manager (RNCM), one population health coordinator, and one licensed master social worker (LMSW).

The process stage focuses on what will be changed regarding how care is provided. The process identified social needs through the implementation of an SDOH screening tool and addressed these unmet social needs by utilizing a referral program to community resources. Process of care refers to the implementation of a standardized screening tool, education to staff and providers, and the development of a referral program.

The outcome of the project was to see improved SDOH screening rates and referrals to community resources. In addition, the long-term goal was to see improved health and social needs outcomes such as improvement in health status, well-being, preventable hospitalizations, reduction in cost, and promotion of health equity (Gurewich et al., 2020). However, it is important to also prepare for unanticipated outcomes. Resistance to utilization of the screening

tool or hesitation to refer patients to resources as planned may occur. In fact, instead of observing a desired decrease in unmet needs over time, there could be an increase.

Search Methodology

A comprehensive database search of Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed was conducted on March 22, 2022. The search was limited to articles written in English that were published between 2017 and 2022. Keyword terms used for both databases were ["social determinants of health" OR SDOH AND clinic* AND "primary care"]. The CINAHL search resulted in a total of 62 articles and the PubMed search resulted in a total of 273 articles. The combined total of articles for this search was 335 articles. After a systematic analysis, seven articles were selected based on the inclusion requirements. All other articles were not included based on the following exclusion criteria, the incorrect setting, incorrect population of focus, non-U.S. based research, disease/condition-specific, or not the area of focus. An additional three articles were included due to hand searches through references. This left a total of ten articles to be reviewed (see Appendix C).

Synthesis of Findings

A literature evaluation for identifying the necessity for a systematic approach to address social needs and follow-up was completed. The Johns Hopkins Nursing Research Evidence Appraisal Tool was used to evaluate the research studies (Dang & Dearholt, 2017). A review of the evidence table can be found in Appendix D. This table identifies the following about each selected article: citation, design/purpose, sample/setting, measurement and instruments, results, levels of evidence (LOE) and quality, and relevance to the problem. A review of the research articles identified the following themes, effectiveness, adoption, and implementation.

Effectiveness

According to Berkowitz et al. (2021), effectiveness is the potential for SDOH and standard work to positively impact patients. Staff and providers believe addressing social needs can help improve care and health outcomes (Berkowitz et al., 2021; Tong et al., 2018). In addition, most staff and providers felt SDOH screening was appropriate and important (Berkowitz et al., 2021; De Marchis et al., 2019; Tong et al., 2018). Screening patients for social needs and providing resources and follow-up care were also linked to strengthening the therapeutic patient-provider relationship and promoting a better understanding of the patient (Berkowitz et al., 20121; Tong et al., 2018). The goal was to see not only the identification of a social need but also that referrals to resources to assist in the need were completed. Implementing a standardized screening process led to a greater than 60% completion rate (Buitron de la Vega et al., 2019; Chagin et al., 2021; De Marchis et al., 2019; Fiori et al., 2019; Rogers et al., 2020).

Adoption

According to Berkowitz et al. (2021), adoption refers to the relevance of the SDOH survey and identified process, along with achieving intended objectives with the utilization of the SDOH program. For this type of program to be successful, the adoption of all efforts and initiatives needs to come from patients, providers, and staff. “Patient acceptability has important implication for implementation of healthcare-based social risk interventions, including for the adoption and sustainability of social risk screening (De Marchis et al., 2019, p. S26).” Literature shows patients are in favor of being screened for social needs and being referred to resources when appropriate (Rogers et al., 2020; De Marchis et al., 2019). Regarding staff and providers, they must be in support of these efforts as well. Greater than 79% of staff felt the screening was

an appropriate task for them to complete and within their scope of practice (Berkowitz et al., 2021; De Marchis et al., 2019). It is equally important to ensure staff feels the questions being asked are relevant (Berkowitz et al., 2021; De Marchis et al., 2019).

Bundling Initiatives

According to Berkowitz et al. (2021), implementation refers to the knowledge and availability of needed resources in the clinical setting to achieve a positive impact on patients and the barriers to implementing SDOH initiatives. There is a lack of staff confidence and availability to screen and address identified social needs of patients (Berkowitz et al., 2021; Greenwood-Ericksen et al., 2021). Staff may feel untrained or ill-prepared to administer the screen and not understand what steps to take next (Berkowitz et al., 2021). It is recommended to develop a program with each initiative of the program identified and these can easily be bundled together (Greenwood-Ericksen et al., 2021; LaForge et al., 2018; Gold et al., 2019; Fiori, 2019). Identified initiatives may include creating an SDOH team, identifying clinic goals, creating an SDOH plan, identifying standard screening tools and community resources that will be utilized, training staff, and implementing a plan (LaForge et al., 2018; Gold et al., 2019; Fiori, 2019). Another potential implementation strategy would be to utilize the screening tool within the electronic health record (EHR) (Greenwood-Ericksen et al., 2021; LaForge et al., 2018). This strategy would allow rooming/intake staff time to review the answers and provide resources when applicable. Providers would have easy access to the patient responses and ability to address the positive screening results. Follow-ups could be completed to assess how the patient is doing with the previously identified social need which would allow for reporting and data abstraction.

Barriers to the successful implementation of the SDOH program were also identified. How comfortable a patient feels in answering these types of intimate and personal questions may

directly impact the completion rates of the screening (Berkowitz et al., 2021). Two additional barriers to completing surveys were time constraints in completing the survey and lack of time for staff to respond to an identified social need (Berkowitz et al., 2021; Greenwood-Ericksen et al., 2021). In addition, survey completion may be impacted by patient literacy levels and further work regarding this should be conducted (Buitron de la Vega et al., 2019; De Marchis et al., 2019; Rogers et al., 2020; Tong et al., 2018). Lastly, continued research is needed in linking social needs screening with health outcomes to help prove the need to implement the SDOH program (Chagin et al., 2021; Tong et al., 2018).

Methods

Project Plan

The quality improvement project focused on implementation of a SDOH screening and referral bundle. The bundle included:

1. American Academy of Family Physicians (AAFP) Social Needs Screening Tool
2. Screening and referral workflow
3. Automatic population of the screening tool within the electronic health record (EHR) for all new patients and annual exams.
4. Education and training for providers and staff on the screening tool and workflow

An SDOH taskforce was organized consisting of the Director of Informatics, clinic manager, medical assistants, LMSW, RNCM, and one provider representative. This taskforce selected the evidence-based screening tool which was also made available electronically within the EHR. A process map was completed with the taskforce that guided the creation of the workflow and training of the screening tool, and referral process (see Appendix E). This promoted collaboration and a stronger working relationship between the staff and the student. Training and

education were provided to all clinic staff and providers on the new screening and referral workflow. IT created a report that pulled the SDOH screening results and identified if any resources were provided or referrals made for the patient. All adult patients aged 18 and older who had an encounter with an Internal Medicine (IM) provider within the designated intervention period were included in the denominator. If the visit was canceled or not completed, these patients were excluded.

The goal of this project was to increase screenings completed and consistently capture referrals being initiated. SDOH screening completion rates were to increase from 50% to 80% on all new patients and annual physical appointments. Completion of the screening consisted of addressing all screening categories and documenting responses in the EHR. If a patient screened positive, it was documented, and the trained staff member provided resources and inquired if the patient would like to be referred to a community resource/partner. If the patient screened positive in two or more domains, a referral was sent to the Care Management Team consisting of a RNCM and LMSW. Resource handouts were provided to patients, and this was documented in the EHR for tracking purposes. Data was obtained from the EHR system. Data collected prior to the SDOH screening and referral bundle was used to compare the number of SDOH screenings completed and the number of referrals made from positive screens after the program was implemented.

Project Site and Population

The project site is an adult Internal Medicine clinic within Michigan State University (MSU) Health Care's academic multi-specialty organization. The clinic is located within the MSU campus border of East Lansing, Michigan in Ingham County. The clinic is open Monday-

Friday from 8:00 a.m. until 5:00 p.m. The clinic provides same day/sick visits, follow-ups, annual physicals, and new patient appointments.

The clinic provides care to 4,071 patients who are all 18 years of age and older. Patient population statistics were provided by the Athena EHR (2022), including the following:

- Age: 40% of the population is 66 years of age or older, 47% are between 36-65 years old, and the remaining 13% are 18–35 years old (Athena, 2022)
- Insurance: 46% have Medicare, 31% have a commercial insurance plan, 22% have Medicaid, and 1% are self-pay/no insurance
- Sex: 57% female and 42% male
- Race: 72% White, 14% Black or African American, 6% Asian, 5% "other," and 3% Hispanic
- Language: 95% identified English as their first language

Social Determinants of Health Form

Multiple SDOH forms are available and in use throughout the United States. Health Leads (2018) identified the importance of keeping the screening tool simple and short while also ensuring selected questions were valid and reliable. The SDOH form being utilized by the clinic prior to this project was a version of the Health Lead's Screening Tool that hadn't been updated since 2016. The SDOH Taskforce decided to select an updated social needs tool. After researching available tools, the American Academy of Family Physician (AAFP) Social Needs Tool was selected.

Utilizing the guidelines identified by the Institute of Medicine and Centers for Medicare and Medicaid Services, the AAFP developed a social need screening tool. According to the AAFP, the social needs chosen to be included in the tool were based on the following criteria:

"1) quality evidence that links poor health and increased health utilization to cost; 2) the social need can often be addressed by community services; and 3) the need is not routinely addressed by health care workers (AAFP, 2018)." This tool was adapted as part of The EveryONE Project and available in both a long and short version. The AAFP Social Needs Tool is a patient self-reported questionnaire that can also be administered by clinical and non-clinical staff (AAFP, 2018). The tool identifies a patient's current social needs. The long version of the tool is divided up into nine domains (housing, food, transportation, utilities, childcare, employment, education, finances, and personal safety) and has a total of fifteen questions (see Appendix F).

Ethical Consideration/Protection of Human Subjects

Approval from Michigan State University Internal Review Board (IRB) and MSU Health Care Director of Informatics was obtained prior to initiating the project. Data provided to this student was deidentified, aggregated, and stored in a password-protected laptop for data analysis. The Doctor of Nursing Practice (DNP) student completed the MSU Health Care's Health insurance Portability and Accountability Act (HIPAA) compliance modules and followed the corresponding privacy policy. The DNP student maintained Athena access throughout this project and was provided a weekly report on data regarding the SDOH screening tool, referrals initiated, and resources given to patients.

MSU Health Care's Information Privacy Officer approved the excel spreadsheet that was used to track deidentified data (see Appendix G) and it was stored on the student's personal laptop. The DNP student followed MSU Health Care's policies and ensured the standards of care were upheld. Implementing the QI project initiated a way to systematically identify the social needs of the patients at the IM clinic. After identifying the social need(s) of a patient, resources could then be provided to the patient, and referrals could be made on behalf of the patient to

community partners. Poor staffing to successfully implement and/or sustain the SDOH screening and referral bundle were identified as potential risks that could lead to patients being missed.

Setting Facilitators and Barriers

The Internal Medicine (IM) providers serviced any adult aged 18 and older who had insurance the organization participated with or who was self-pay. The Internal Medicine clinic had nine Internal Medicine board-certified medical doctors and one board-certified Family Nurse Practitioner. The clinic was managed by the RN Clinic Manager and a Clinic Coordinator. There were five front desk receptionists, seven medical assistants (MAs), one licensed practical nurse, four RNs, one RN Care Manager, one LMSW, one cardiovascular technician, one echocardiographer, and one referral coordinator.

The primary care services provided by the IM Clinic included annual physicals, sick visits, chronic disease management, transitional care management, point-of-care services, preventative care services, and the clinical also participates in the Patient Centered Medical Home (PCMH) and Primary Care First (PCF) quality programs. The PCMH program recently added SDOH as one of the capabilities to demonstrate. Prior to this project, the SDOH and referral workflow the clinic was utilizing was outdated, not standardized, and was inconsistently being completed. The SDOH screening tool previously utilized had not been re-evaluated since 2016. Training to staff and providers regarding the SDOH screening and referral workflow had been completed once in 2016 and had not been repeated.

A strengths, weaknesses, opportunities, and threats (SWOT) analysis was performed to help identify factors leading to the successful implementation of this program in the clinic (see Appendix H). Increased time to room patients and staffing shortages were two key weaknesses identified. A lack of willingness to participate from staff, providers, and even patients was also

identified. Another weakness was the lack of standardized workflow and prioritization of the SDOH initiative. The threats identified were related to community resources not having the capacity to meet the increased needs of patients screening positive. Sustainability, increased time and workload, and dissatisfaction with new responsibilities for staff and providers were also identified as threats. It would also be challenging to determine a return on investment (ROI) and a realistic way to track this initiative.

There were several strengths and opportunities identified. With the involvement of the Informatics Director and EHR capabilities, it was easier to obtain reports and data necessary for this project. The Informatics Director was vital in finalizing modified documentation templates and the screening tool within the EHR. The clinic has a RNCM and a newly hired LMSW who was instrumental in the SDOH project. They provided a team-based approach to this project and acted as a resource and guide. There were no direct supplies or equipment costs as the screening tool was already part of the EHR. The cost was staff time to complete the screening and referral workflow. Providers within the clinic had been attempting to address SDOH with their patients and were willing to participate in this initiative. Opportunities involved the development of a more efficient and up-to-date screening tool, referral process, and workflow. Documentation and follow-up with SDOH should also be improved. There should be an increase in connecting patients to community resources and an improved focus on social needs for high-risk, complex patients, leading to improved patient outcomes.

The Intervention and Data Collection Procedure

A Plan-Do-Study-Act (PDSA) model was used to identify each stage of the project (see Appendix I):

Plan.

- Development of SDOH Taskforce
- Conducted literature search to select a valid SDOH Screening Tool
- Formatted screening tool in the EHR
- Screening tool automatically populated for new patient and annual exam encounters
- Taskforce developed a screening and referral workflow
- Staff and providers were educated on the updated SDOH screening tool, documentation expectations, referral process, and new workflow
- IT created a report that provided SDOH data
- Pre-intervention data identified the percentage of SDOH screening and referrals completed
- Report was run on a weekly basis throughout the implementation and evaluation stages of this project.
- Final report identified finalized post-intervention data to be compared to the pre-intervention data.

Do.

- Three categories of participants: patients, clinic staff, and healthcare providers. Patients' education levels varied. Providers were academic faculty physicians or nurse practitioners, and staff ranged from medical receptionists, medical assistants, and registered nurses, as well as a RNCM, LMSW, and clinic manager. The key stakeholders and their roles in the project were as follows:
    - Staff – involved in training/education of the workflow, screening tool, along with implementation of the workflow

- Providers - involved in training/education of the workflow, screening tool, along with implementation of the workflow
- Patients – involved in the implementation phase of intervention bundle, completing the screening tool, and receiving resources/referrals if acceptable
- Director of Informatics – DNP student's project mentor; assisted with determining proper EHR access; assisted with updating the new screening tool in EHR
- Clinic Leadership – provided approval to implement the QI project at the site; promotion of the project and outcomes to staff and providers; provided ongoing support as needed throughout the project
- Information Technology – created data reports; provided reports weekly to DNP student
- Compliance – granted appropriate EHR access to DNP student

Study.

- See Appendix J for the project timeline. The Final Project Proposal and IRB approval was obtained in September 2022. The interventions were developed in October 2022 and implementation of these interventions began in November 2022. Pre-intervention data was collected in September/October and post-intervention data was collected weekly for a 12-week data collection period beginning in November 2022 and ending in January 2023. Analysis and interpretation of data occurred in the months February-April 2023. The dissemination of results was presented, and the final report was completed in April 2023.

Act.

- Data Analysis Plan: aggregated data was provided. IT published the report to the DNP student's EHR reporting inbox and the password protected report was saved on the student's personal laptop. The DNP student compared the independent baseline pre-intervention sample data to the independent post-intervention sample data.
- Pre-intervention data was obtained on the rate of SDOH screening completed. The denominator was the number of patients who should have had a screening completed (new patient appointments or annual physical appointments) and the numerator was the number of patients who had the screening completed. The percentage of screening completion was calculated. The number of referrals was also reported on the SDOH domains.
- IT provided this report weekly to monitor the effectiveness of the interventions. During the analysis and interpretation phase, the independent post-intervention data was compared to the independent pre-intervention data.

Measurement Instruments/Tools

The Informatics Director assisted the DNP student with getting the AAFP Social Needs Screening Tool built in the EHR. IT created a report that populated data related to the electronic version of the SDOH tool. The baseline data provided independent pre-intervention sample data. The baseline sample included a look back on the past 100 patient encounters that were either new patient visits or annual physical visits.

Interventions were initiated, including one-time training for staff and providers, implementation of an updated screening tool and workflow, and the auto-population of the screening tool for all new patient and annual exam appointments. The post-intervention data was

obtained in another report for comparison. This report collected data over a 12-week period and evaluated SDOH completion rates on 675 encounters. Encounters included were either new patient visits or annual physical visits post-intervention. This report identified if the updated SODH screening was completed, how each question was answered, and if resources were provided to the patient.

Cost-Benefit Analysis/Budget

Resources for this project were budget neutral and possibly even cost-savings. The SDOH initiative was going to be implemented even without the assistance of the DNP student as this was an anticipated project. The student created training content and educated providers and staff. Staff and providers would have needed training regardless of whether it was the DNP student initiating the project or another designee within the organization. The Informatics Director would have needed to work with IT to update the SDOH screening tool regardless of this project. The clinic was already handing out paper screening tools and this will continue utilizing the updated SDOH screening tool. Completing the new Screening Tool did not take any more time than the older version. The social worker did receive referrals from this project, but as a salaried employee, this was an anticipated task. Resource handouts were available to be printed and were also available electronically on the public website and patient portal.

In the future, providers may need to address critical social needs by working with the care manager and/or social worker and patient as a team. This project did not evaluate patient outcomes. However, evaluating the impact this program has on patient outcomes would help justify the continuation and expansion of this program. It will be important to identify what outcomes are affected – looking for improved social and medical outcomes.

Evaluation and Outcomes Measure

The independent, pre-intervention data included the percentage of SDOH screenings completed and was used to compare to the independent, post-intervention data. Successfully initiating the SDOH screening and referral program was dependent on the effectiveness of the program, full adoption of the program by all stakeholders, and utilization of proper implementation strategies. With the training and updated screening tool and referral workflow, there was an increase in the percentage of patients screened and referrals to community resources could be tracked. The continued goal by providing a standardized method to identify and address social needs was to promote better health and outcomes for patients.

Analysis

Prior to this project, the clinic completed the SDOH screening on 50% of the patients. After the first week following implementation, the clinic completed the SDOH screening on 56% of the appropriate encounters. The clinic consistently made improvements in their completion rate throughout the weeks following the implementation of the interventions. The last week of data collection resulted in an 85% SDOH screening rate. Looking at the average completion rate over the 12-weeks of data collection, the clinic ended the QI project with an average rate of 73% (see Appendix K).

The previous system utilized for the SDOH screening and referral system did not make it easy to report on referrals initiated from the SDOH screening. Documentation of referrals was inconsistent, making it difficult to report on the number of referrals. Utilizing the new SDOH screening tool that was built within the EHR allowed for the ability to collect data on referrals initiated from the screening tool responses. It also allowed staff and providers to evaluate past screening responses and actions.

Recommendations and Sustainability

Sustainability for this project is dependent on the provider, staff, and patient buy-in and continued willingness to participate. In addition, this initiative needs to remain a priority for the organization. Continued evaluation of the project initiatives will be key, and this responsibility will need to be handed-off to another qualified person within the organization as the DNP student has completed the project evaluation. This would be a perfect future DNP project for other students. It would be beneficial for future work to focus on types of referrals and look at the impact this has on outcomes for patients.

Making the screening tool available during pre-visit registration may result in an even higher SDOH screening completion rate. According to the AAFP EveryOne project (2018), "individuals may be more likely to disclose sensitive information, such as interpersonal violence, when self-administered." The screening tool would be completed electronically by the patient prior to their visit on their own device in the comfort of their own home. This may also result in more accurate/honest responses and requests for referrals and/or resources. Currently, the IT team is working with their pre-visit registration vendor to get this screening tool added to their system.

Staff indicated the new screening tool and referral workflow did not take more time to complete. They unanimously preferred the new screening tool over the old and appreciated that it allowed them to look back on past screening responses and actions taken. This new electronic tool allowed them to see if a past referral was made and/or resources given to the patient. The staff can follow-up on these to see if the resources were helpful or if additional assistance is needed. The new screening tool also allows for graphing and trending of all the responses.

Having the addition of an LMSW helped with the facilitation, management, and follow-up of resources and referrals. It would be beneficial to investigate the Community Health Worker (CHW) role for the clinic. This role would be used to help connect patients to resources. They would research the need, provide options to the patient, and keep the provider and LMSW aware of the progress. For additional clinics to initiate this program, they would need an LMSW and/or RNCM. The LMSW could also bill for services rendered when appropriate to help offset the cost of their salary.

Discussion/Implications for Nursing

Screening for social needs is becoming an expectation within healthcare and more specifically within nursing. When caring for a patient, the nurse is trained to look at the whole patient and consider all potential contributing factors, barriers, and supports. Identifying social needs can only make the care nurses provide more meaningful and complete (Tiase et al., 2022). This allows the identification of a need, initiation of referrals and/or resources when a need is verbalized, and follow-up to see if the support provided was beneficial.

Even though addressing SDOH is something nurses routinely consider, this project confirmed there is a lack of systematic screening and standardized referral workflow. Nurses can lead the charge in educating, researching, and partnering with community resources regarding SDOH (Tiase et al., 2022). The nursing profession can reach all levels of influence, beginning at the organizational level up to the local, state, and national levels. Nurses can influence and advance standards, policies, and incentives regarding SDOH (Tiase et al., 2022). Nurses can advocate for the SDOH screening and workflows but this will not be successful without the collaboration of nursing and community partners. Nurses can help to identify valuable resources and develop a process connecting patients to these resources. “Nurses are well-positioned to

advance operational efforts to incorporate SDOH screening tools and information into new care models that prioritize the efficient use and exchange of such information to adequately meet patient needs." (Tiase et al., 2022)

Conclusion

According to the AAFP, healthcare is moving towards a value-based payment model focusing on health outcomes and not processes (AAFP, 2018). This type of model promotes healthcare workers to address patient behaviors and social factors as they directly impact health outcomes and how providers are paid (AAFP, 2018). As this project identified, there are challenges in addressing social needs such as how to operationalize and implement a successful SDOH screening and referral program. Although this intervention bundle did improve the completion rate of SDOH screening on patients, there is limited research on the impact an SDOH program influences certain patient outcomes.

Implementing a successful SDOH program is dependent on engagement from leadership, provider, staff, and patients. There needs to be a program champion, and this would be a perfect program for a clinical nurse specialist (CNS) to oversee and implement across the entire organization. The CNS could also begin working on researching the effects the SDOH program may have on the outcomes of the patients being screened like hospital readmission rates, healthcare costs, patient satisfaction rates, and emergency department visits. In addition, looking at the cost-benefit ratio and return on investment (ROI) will be important in convincing others to join this important and necessary initiative. Ultimately, the goal should be to attain health equity for all and this is directly influenced by nurses and nurse leaders utilizing social needs data to guide clinical decision-making (Tiase et al., 2022).

References

American Academy of Family Physicians. (2018). Addressing social determinants of health in primary care: a team-based approach for advancing health equity. https://www.aafp.org/dam/AAFP/documents/patient_care/everyone_project/team-based-approach.pdf

American Academy of Family Physicians. (2018). The EveryONE Project: Social Needs Screening Tool. https://www.aafp.org/dam/AAFP/documents/patient_care/everyone_project/hops19-physician-form-sdoh.pdf

Athena. (2022). [Unpublished raw data on the patient demographic statistics of the Internal Medicine clinic]. Michigan State University Health Care Inc.

Berkowitz, S. A., Hulberg, A. C., Hong, C., Stowell, B. J., Tirozzi, K. J., Traore, C. Y., & Atlas, S. J. (2016). Addressing basic resource needs to improve primary care quality: a community collaboration programme. *BMJ Quality & Safety*, *25*(3), 164-172. http://doi.org/10.1136/bmjqs-2015-004521

Berkowitz, R. L., Bui, L., Shen, Z., Pressman, A., Moreno, M., Brown, S., Nilon, A., Miller-Rosales, C., & Azar, K. M. J. (2021). Evaluation of a social determinants of health screening questionnaire and workflow pilot within an adult ambulatory clinic. *BMC Family Practice,* 22(1), 1–14. https://doi-org.proxy1.cl.msu.edu/10.1186/s12875-021-01598-3

Buitron de la Vega, P., Losi, S., Sprague Martinez, L., Bovell-Ammon, A., Garg, A., James, T., Ewen, A. M., Stack, M., DeCarvalho, H., Sandel, M., Mishuris, R. G., Deych, S., Pelletier, P., & Kressin, N. R. (2019). Implementing an EHR-based screening and referral

system to address social determinants of health in primary care. *Medical Care*, *57*, S133–S139. https://doi.org/10.1097/MLR.0000000000001029

Centers for Disease Control and Prevention. (2021). *Social determinants of health*. U.S. Department of Health and Human Services. https://www.cdc.gov/socialdeterminants/about.html

Dang, D., & Dearholt, S. L. (2017). *Johns Hopkins nursing evidence-based practice: Model and guidelines*. Sigma Theta Tau International.

De Marchis, E. H., Hessler, D., Fichtenberg, C., Adler, N., Byhoff, E., Cohen, A. J., Doran, K. M., Ettinger de Cuba, S., Fleegler, E. W., Lewis, C. C., Lindau, S. T., Tung, E. L., Huebschmann, A. G., Prather, A. A., Raven, M., Gavin, N., Jepson, S., Johnson, W., Ochoa, E., Jr, Olson, A. L., … Gottlieb, L. M. (2019). Part I: A quantitative study of social risk screening acceptability in patients and caregivers. *American Journal of Preventive Medicine*, *57*(6), S25–S37. https://doi.org/10.1016/j.amepre.2019.07.010

Fiori, K., Patel, M., Sanderson, D., Parsons, A., Hodgson, S., Scholnick, J., ... & Braganza, S. (2019). From policy statement to practice: integrating social needs screening and referral assistance with community health workers in an urban academic health center. Journal of Primary Care & Community Health, 10, 1-8. https://journals.sagepub.com/doi/pdf/10.1177/2150132719899207

Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated deaths attributable to social factors in the United States. *American Journal of Public Health*, *101*(8), 1456-1465. https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2010.300086

Gold, R., Bunce, A., Cottrell, E., Marino, M., Middendorf, M., Cowburn, S., Wright, D., Mossman, N., Dambrun, K., Powell, B. J., Gruß, I., Gottlieb, L., Dearing, M., Scott, J., Yosuf, N., & Krancari, M. (2019). Study protocol: A pragmatic, stepped-wedge trial of tailored support for implementing social determinants of health documentation/action in community health centers, with realist evaluation. *Implementation Science: IS*, *14*(1), 9. https://doi.org/10.1186/s13012-019-0855-9

Gomez, M. B. (2017). Neoliberalization's Propagation of health inequity in urban rebuilding processes: The dependence on context and path. *International Journal of Health Services*, *47*(4), 655–689. https://doi.org/10.1177/0020731417712393

Gottlieb, L. M., Wing, H., & Adler, N. E. (2017). A systematic review of interventions on patients' social and economic needs. *American Journal of Preventive Medicine*, *53*(5), 719-729. https://doi.org/10.1016/j.amepre.2017.05.011

Greenwood-Ericksen, M., DeJonckheere, M., Syed, F., Choudhury, N., Cohen, A. J., & Tipirneni, R. (2021). Implementation of health-related social needs screening at Michigan health centers: A qualitative Study. *Annals of Family Medicine*, *19*(4), 310–317. https://doi.org/10.1370/afm.2690

Gurewich, D., Garg, A., & Kressin, N. R. (2020). Addressing social determinants of health within healthcare delivery systems: A framework to ground and inform health outcomes. *Journal of General Internal Medicine*, *35*(5), 1571–1575. https://doi.org/10.1007/s11606-020-05720-6

Health Leads. (2018). *The 2018 Health Leads Screening Toolkit*. https://healthleadsusa.org/resources/the-health-leads-screening-toolkit/

Healthy!CapitalCounties. (2021). 2021 Community Health Profile & Health Needs Assessment. https://www.eatonrapidsmedicalcenter.org/wp-content/uploads/2022/02/be01-2020-report-final_2.10.pdf

Horwitz, L. I., Chang, C., Arcilla, H. N., & Knickman, J. R. (2020). Quantifying health systems' investment in social determinants of health, by sector, 2017–19. *Health Affairs*, *39*(2), 192-198. https://doi.org/10.1377/hlthaff2019.01246

LaForge, K., Gold, R., Cottrell, E., Bunce, A. E., Proser, M., Hollombe, C., Dambrun, K., Cohen, D. J., & Clark, K. D. (2018). How 6 Organizations Developed Tools and Processes for Social Determinants of Health Screening in Primary Care: An Overview. The Journal of ambulatory care management, 41(1), 2–14. https://doi.org/10.1097/JAC.0000000000000221

Lee, J., & Korba, C. (2017). Social determinants of health: How are hospitals and health systems investing in and addressing social needs. *Deloitte Center for Health Solutions.* https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-addressing-social-determinants-of-health.pdf

McDonald, K. M., Sundaram, V., Bravata, D. M., Lewis, R., Lin, N., Kraft, S. A., ... & Owens, D. K. (2007). Conceptual frameworks and their application to evaluating care coordination interventions. In K.G. Shojania, K.M. McDonald, R.M. Wachter, and D.K Owens (Eds.), *Closing the quality gap: A critical analysis of quality improvement strategies (*Vol. 7, pp. 109-130*)*. Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/books/NBK44008/

MDHHS Office of Planning. (2020). *2020 Michigan Primary Care Needs Assessment (PCNA)* (Report No. U68HP11497). https://www.michigan.gov/-

/media/Project/Websites/mdhhs/Folder4/Folder27/Folder3/Folder127/Folder2/Folder227/Folder1/Folder327/Michigan_Primary_Care_Needs_Assessment.pdf?rev=98f8bb196744456191267b6f4583b5b6

Ndugga, N., & Artiga, S. (2021). *Disparities in health and health care: 5 key questions and answers.* Kaiser Family Foundation. https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-question-and-answers/

Office of Disease Prevention and Health Promotion. (n.d.). Social determinants of health. *Healthy People 2030*. U.S. Department of Health and Human Services. https://health.gov/healthypeople/objectives-and-data/social-determinants-health

Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ*, *372*. https://www.bmj.com/content/372/bmj.n71

Perrin, E. C. (1998). Ethical questions about screening. https://psycnet.apa.org/record/1998-12859-006

Rogers, A. J., Hamity, C., Sharp, A. L., Jackson, A. H., & Schickedanz, A. B. (2020). Patients' attitudes and perceptions regarding social needs screening and navigation: Multi-site survey in a large integrated health system. *Journal of General Internal Medicine*, *35*(5), 1389–1395. https://doi.org/10.1007/s11606-019-05588-1

Taylor, L. A., Tan, A. X., Coyle, C. E., Ndumele, C., Rogan, E., Canavan, M., Curry, L. A., & Bradley, E. H. (2016). Leveraging the social determinants of health: What works?. *PLOS ONE*, *11*(8), Article e0160217. https://doi.org/10.1371/journal.pone.0160217

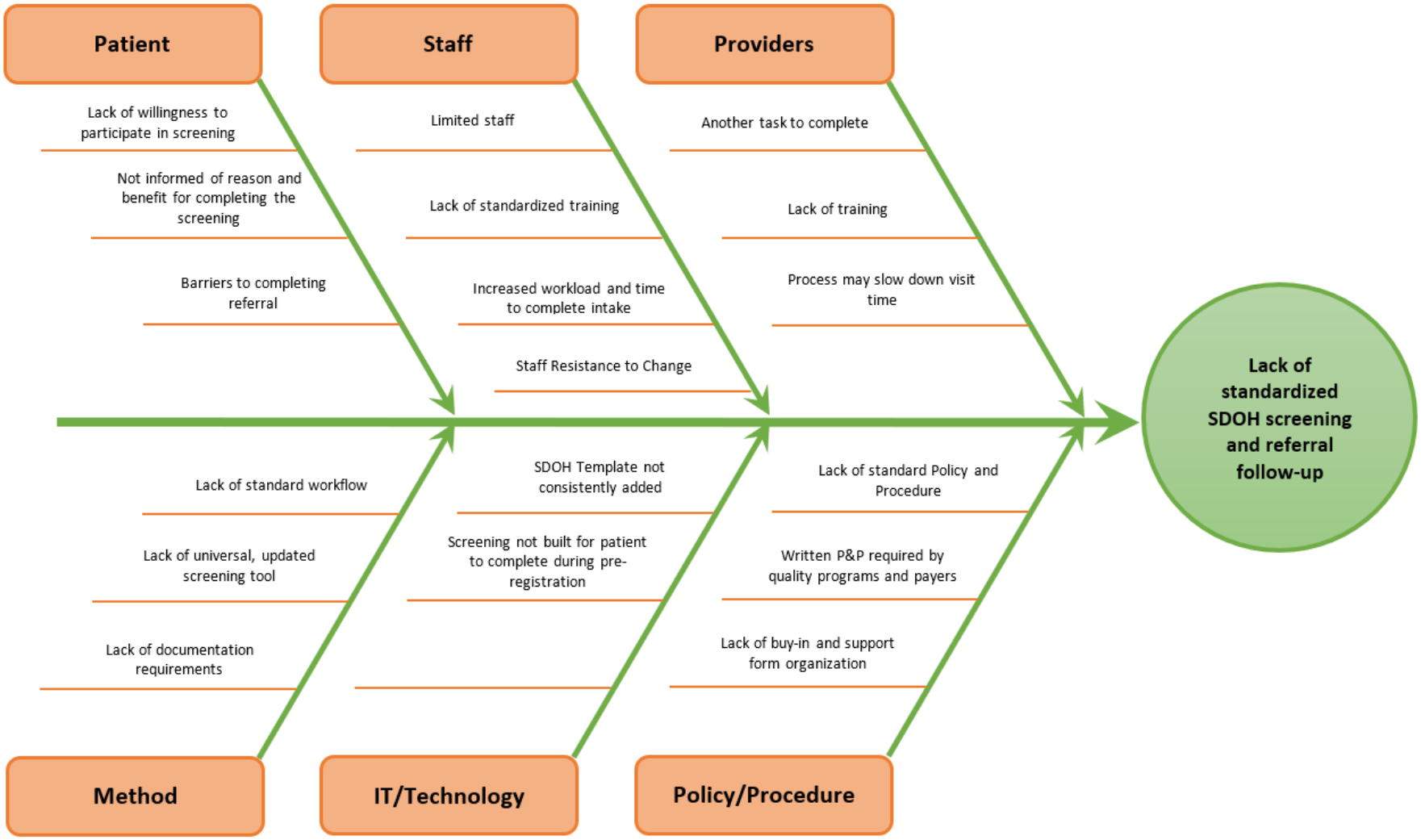
Tiase, V., Crookston, C. D., Schoenbaum, A., & Valu, M. (2022). Nurses' role in addressing social determinants of health. *Nursing2022*, *52*(4), 32-37. https://journals.lww.com/nursing/fulltext/2022/04000/nurses__role_in_addressing_social_determinants_of.10.aspx

Tong, S. T., Liaw, W. R., Kashiri, P. L., Pecsok, J., Rozman, J., Bazemore, A. W., & Krist, A. H. (2018). Clinician experiences with screening for social needs in primary care. *Journal of the American Board of Family Medicine: JABFM*, *31*(3), 351–363. https://doi.org/10.3122/jabfm.2018.03.170419

World Health Organization. 2022. *Social determinants of health*. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

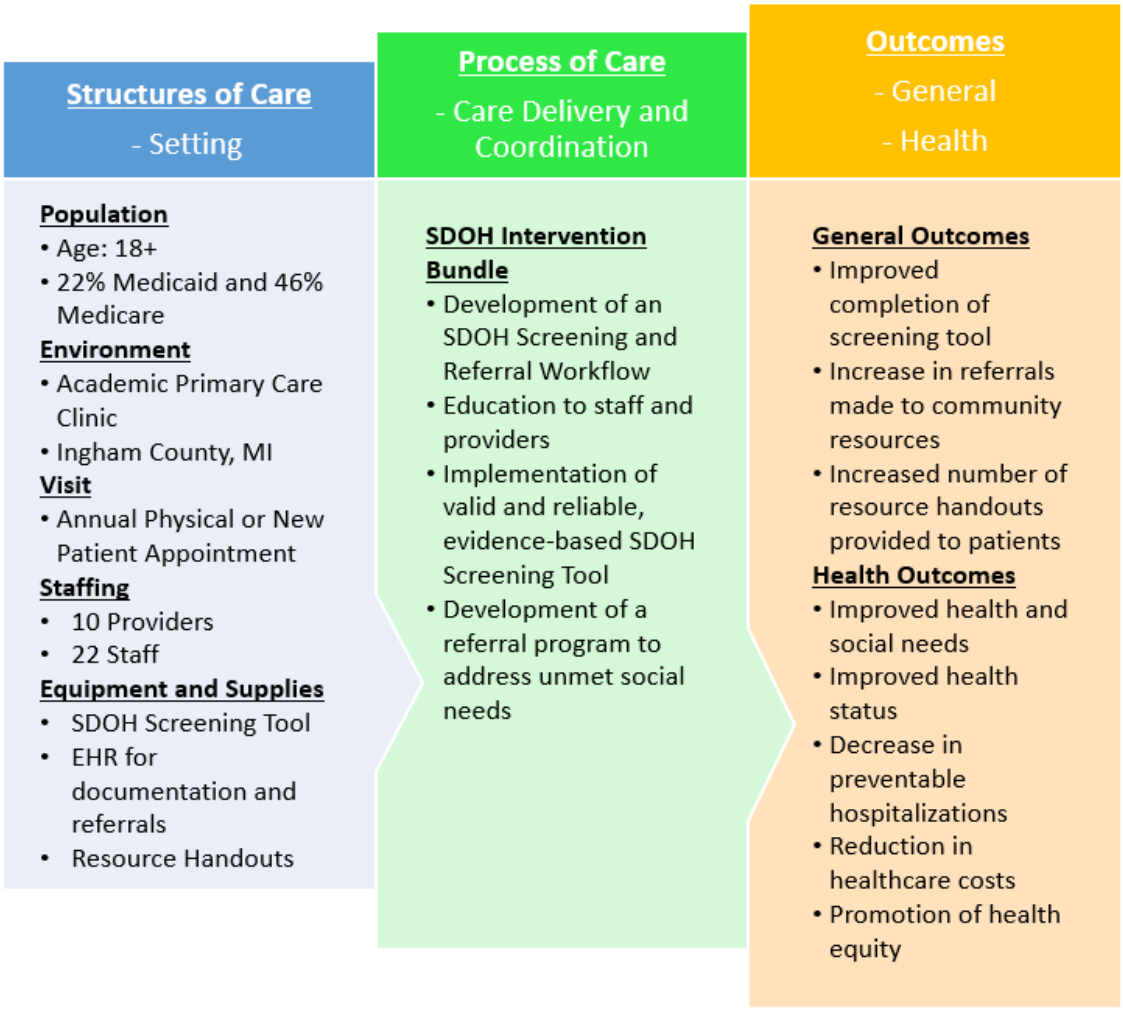
Appendix A

Fishbone Diagram - SDOH



Appendix B

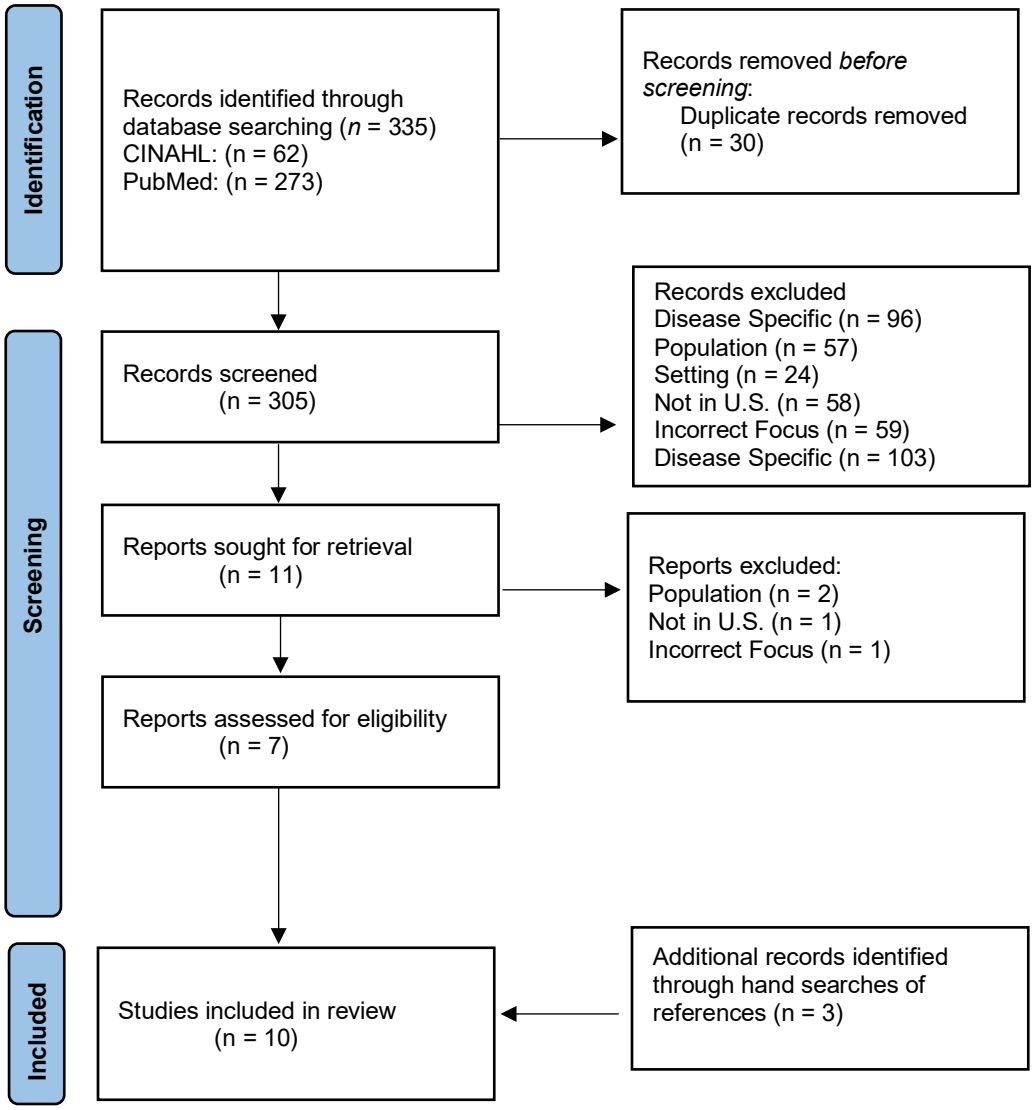
Donabedian Framework



Appendix B. Conceptual Frameworks and Their Application to Evaluating Care Coordination Interventions (McDonald, et al., 2007)

Appendix C

PRISMA Diagram



Appendix C. 2020 PRISMA flow diagram. *From:* Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ*, *372*. https://www.bmj.com/content/372/bmj.n71

Appendix D

Quality Improvement Project Evidence Critique Table

Problem Statement: In an adult academic primary care clinic, how does implementing a SDOH screening and referral program improve the number of patients screened and appropriately referred to resources within 6 months? In addition, how does this implementation affect the number of staff and providers trained on this initiative?						
Article Citation	**Design/Purpose**	**Sample/Setting**	**Measurement and Instruments**	**Results**	**LOE, Quality, Strengths and Weaknesses**	**Relevance to Problem**

Berkowitz et al., 2021	Quality Improvement Pilot	A single ambulatory Family Medicine and Internal Medicine clinic 289 patients were eligible for SDOH screening	EHR data extraction Staff experience survey (REDCap) Pilot evaluation was guided by the RE-AIM framework	Evaluation metrics **Reach**: demographic factors of respondents, 83% responded to at least one domain **Effectiveness**: the most common SDOH identified was stress (33%) and physical activity (22%); 90% of staff respondents believed social needs information could help improve patient care and health outcomes, along with improving therapeutic relationships with patients **Adoption:** 95% of staff believed obtaining SDOH was within their scope of practice, 80% of staff felt the survey asked relevant questions, 90% felt the survey improved the clinic's ability to identify unmet social needs **Implementation** 85% of staff understood their role r/e survey, only 50% were aware of resources to support, on average adding SDOH increased visit length time by 1.7 minutes	V/B	Evaluate the SDOH screening tool and workflow as it attempts to reach all eligible patients, impact clinical care, and obtain staff perspectives regarding this process

Buitron de la Vega et al., 2019	Observational Study	Boston Medical Center (BMC), an urban, tertiary care academic medical center 2,420 patients were eligible	Descriptive analyses were used for this study	Only 1,696 patients were screened (70%) 82% of patient with one or more social need had appropriate ICD-10 codes added to their chart 86% of patients who requested resources received them	V/C	This study assessed the implementation of the SDOH screening and referral program, THRIVE. Each positive SDOH answer is linked to an ICD-10 code and referral resource. Key factors for successful implementation were identified: - getting support from institutional leadership - adequately leveraging EHR features and workflows - soliciting and incorporating feedback from key stakeholders - sharing relevant data with front line practice managers and staff weekly

Chagin et al., 2021	Scoping Review Utilize a framework to evaluate SDOH screening and referrals	MetroHealth System Cleveland, OH 7 clinic locations 5,741 completed the screening	SDOH Screening tool covering 9 topics was administered in-person, over the phone, or online through a My Chart portal questionnaire	5,741 completed the screening (60% of the original population asked to participate) 360 referrals were made from a positive screening response 27% of these were resolved	V/C	Examination in SDOH screening and assistance program is necessary to identify if the process is working correctly Each step of the process may need adjustment throughout initiation and even after Ensure there is enough trained staff in the process Address needs immediately, do not wait to reach out later Document reason for why patient not referred, or referral is unresolved

De Marchis et al., 2019	Cross-sectional survey	969 adult patients and adult caregivers of pediatric patients from 6 primary care clinics and 4 Eds across 9 states Excluded patients who did not speak English or Spanish	Survey data was captured utilizing REDCap electronic data capture tool Descriptive statistics and univariable analyses were used	79% of participants completed the screening 61.4% screened positive for at least 1 social risk-based question 79% felt the screening was appropriate 65% reported being comfortable this data being included in EHR	III/B	This study confirmed patients' acceptance in being asked social needs questions and that this should not be a barrier when implementing a screening program.
Fiori et al., 2019	Performance Improvement	Health system partnership: Bronx Community Health System, Montefiore Office of Community and Population Health, and the Montefiore Medical Group ambulatory network Pediatric patients seen between May 2017 and April 2018	RE-AIM was used for data collection and performance improvement measures Screening results were obtained monthly from EMR, EPIC Microsoft Excel was used to tabulate metric data and create tables and charts	6,410 eligible patients to screen in timeframe 4,162 of them were screened (screening rate of 65%) 19.7% of screens had one or more positive responses	V/B	Implementation of a screening program included: Social needs screening workflow, referral workflow, accompaniment, systematic patient follow-up, provider champion, administrative liaisons, performance improvement activities

Gold et al., 2019	Mixed methods, pragmatic, stepped-wedge, cluster-randomized trial	Total of 30 community health centers - 1st wave had 15 practices - 2nd wave included the 15 other practices All practices were recruited from OCHIN's membership (across 18 states) Reviewed all patients seen between June 2016 and May 2018	Formative data collection and analysis for year 1 has been completed, along with interviews of staff members. For year 2-5 all quantitative data will be obtained from the EHR, and outcomes will be measures utilizing the Re-AIM framework	The realist evaluation approach was used due to the complexity of interventions being studied However, at the time this article was written, they had only completed one year and were entering into year 2. Therefore, no finalized data is available.	III/B	Program provided step-by-step tailored implementation strategies included: clinic action plan, technical assistance implementing SDOH screening, technical assistance using EHR, ongoing technical assistance tailored to problem-solving, bi-monthly hour-long webinars/office hours/peer support, monthly hour-long coaching calls, email questions Implementation support included: create an "SDH team", identify clinic goals, create an "SDH plan." training clinic staff in the "SDH plan," and roll out the "SDH plan"

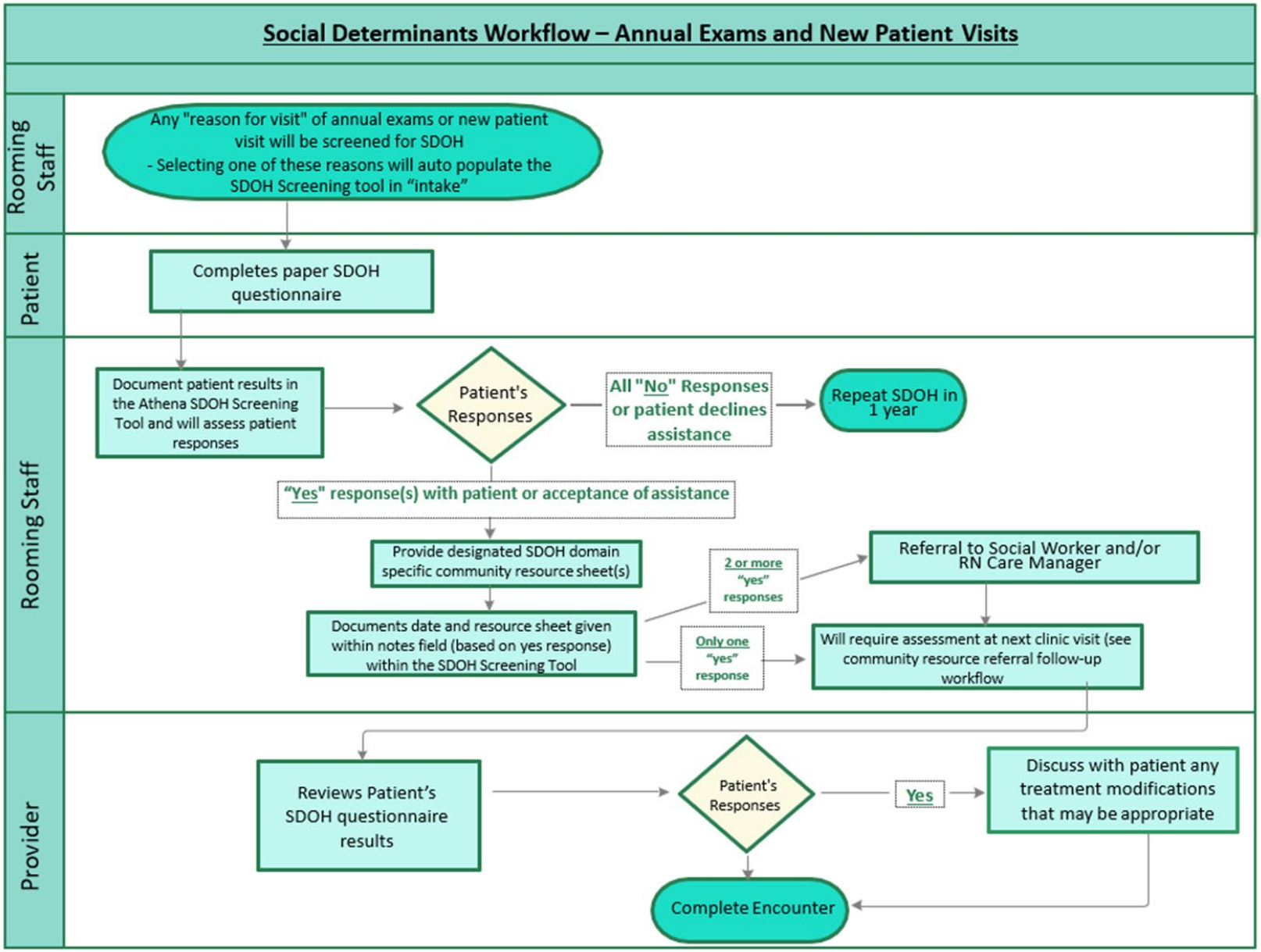
Greenwood-Ericksen et al., 2021	Qualitative study	The first 5 Federally qualified health centers in Michigan who responded got to participate Within each site they used snowball sampling resulting in 23 participants	Semi-structured interviews were completed Four team members reviewed 2 transcripts and the team compared and adjusted code that would be used for all transcripts, preliminary findings were then shared with MPCA	Comparison between all 5 sites was completed on the following subthemes: Identification of patients Team members performing screening Screening approach Screening tool Mode of screening Role linking patient to resources	III/C	This study identifies the lack of standardized workflow and screening tools across multiple clinic locations. Recommendations for next steps would be to integrate SDOH into the EHR and integrate the data into population health efforts.
LaForge et al., 2018	Case Study	Representatives from 6 organizations had developed tools for ambulatory care-based SDOH screening were asked to participate in a semi structured audio-recorded interview via phone or in person	Interview was conducted via phone or in person addressing each interviewees screening tool purpose, development process, and subsequent use The lead author transcribed all passages related to SDOH tool development	5/6 had screening tool available in HER 3/6 had screening tool on patient portal 6/6 had screening tool available on paper 2/6 included community resources with screening tool 4/6 included workflow in screening process	V/B	Need to identify a screening tool that meets the needs of the organization and patients served Develop a process to administer the tool that works best for all involved Plan to address when patients screen positive, referral to community resources

Rogers et al., 2020	Multi-site, self-administered survey	1470 adults in 7 ambulatory and primary care family medicine and internal medicine clinics in Southern California Patient who did not speak English or Spanish were excluded	Survey measure of experience with acceptability of, and attitudes toward clinical SDOH screening and navigation Analyses were conducted using multivariable logistic regression models with clinic site cluster adjustment	Of the 1470 approached, 1,161 adult patients participated in the survey (79% response rate) 85% stated the health system should ask about social needs 88% think health systems should address social needs 69% agreed social needs impacts health 69% responded to at least 1 or more social need 79% felt health systems should use social need information to improve care for patients	V/C	This study identifies the importance of obtaining the patient's perspective regarding a program that will be implementing SDOH questions, documenting responses, and then offering resources and follow-up. Responses from the survey verified patients do want to be screened for social needs and have intervention put in-place.

Tong et al., 2018	Prospective, observational design	Northern Virginia 17 clinicians 12 practices 215 eligible patients	Data was collected via learning collaborative transcripts, clinician diary entries, and patient social needs surveys Used descriptive statistics to calculate the percentage and counts from questions from diary entries Used software Stata 14.2	123 patients completed social needs survey 92 did not participate for various reasons 86.22% of patients screened positive in at least 1 domain Only 3.3% wanted help in any domain Screening positive for physical activity was reported by 53%, dental was next at 25.2% and then alcohol use at 14.6% Providers felt 52.5% of the encounters that were screened helped them know the patient better	III/B	This study helps identify the potential value a provider may find with screening patients for social needs. In addition, they may see a stronger patient-provider relationship and a better understanding of the patient. Further work is necessary to determine how providers can adequately address the social needs and correlate to improved health outcomes.

Appendix E

SDOH Screening and Referral Process Map/Workflow



Appendix F

SDOH Screening Tool

AAFP
AMERICAN ACADEMY OF FAMILY PHYSICIANS

Social Needs Screening Tool

HOUSING

1. Are you worried or concerned that in the next two months you may not have stable housing that you own, rent, or stay in as a part of a household?[1]
   - ☐ Yes
   - ☐ No

2. Think about the place you live. Do you have problems with any of the following? (check all that apply)[2]
   - ☐ Bug infestation
   - ☐ Mold
   - ☐ Lead paint or pipes
   - ☐ Inadequate heat
   - ☐ Oven or stove not working
   - ☐ No or not working smoke detectors
   - ☐ Water leaks
   - ☐ None of the above

FOOD

3. Within the past 12 months, you worried that your food would run out before you got money to buy more.[3]
   - ☐ Often true
   - ☐ Sometimes true
   - ☐ Never true

4. Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.[3]
   - ☐ Often true
   - ☐ Sometimes true
   - ☐ Never true

TRANSPORTATION

5. Do you put off or neglect going to the doctor because of distance or transportation?[1]
   - ☐ Yes
   - ☐ No

UTILITIES

6. In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?[4]
   - ☐ Yes
   - ☐ No
   - ☐ Already shut off

CHILD CARE

7. Do problems getting child care make it difficult for you to work or study?[5]
   - ☐ Yes
   - ☐ No

EMPLOYMENT

8. Do you have a job?[6]
   - ☐ Yes
   - ☐ No

EDUCATION

9. Do you have a high school degree?[6]
   - ☐ Yes
   - ☐ No

FINANCES

10. How often does this describe you? I don't have enough money to pay my bills:[7]
    - ☐ Never
    - ☐ Rarely
    - ☐ Sometimes
    - ☐ Often
    - ☐ Always

PERSONAL SAFETY

11. How often does anyone, including family, physically hurt you?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

12. How often does anyone, including family, insult or talk down to you?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

The EveryONE Project®
Advancing health equity in every community

13. How often does anyone, including family, threaten you with harm?[8]
- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Fairly often (4)
- ☐ Frequently (5)

14. How often does anyone, including family, scream or curse at you?[8]
- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Fairly often (4)
- ☐ Frequently (5)

ASSISTANCE

15. Would you like help with any of these needs?
- ☐ Yes
- ☐ No

SCORING INSTRUCTIONS:

For the housing, food, transportation, utilities, child care, employment, education, and finances questions: Underlined answers indicate a positive response for a social need for that category.

For the personal safety questions: A value greater than 10, when the numerical values are summed for answers to these questions, indicates a positive response for a social need for personal safety.

Sum of questions 11–14: _____
Greater than 10 equals positive screen for personal safety.

REFERENCES

1. https://www.va.gov/HOMELESS/Universal_Screener_to_Identify_Veterans_Experiencing_Housing_Instability_2014.pdf
2. Nuruzzaman N, Broadwin M, Kourouma K, Olson DP. Making the social determinants of health a routine part of medical Care. *J Health Care Poor Underserved*. 2015;26(2):321-327.
3. Hager ER, Quigg AM, Black MM, et al. Development and validity of a 2-item screen to identify families at risk for food insecurity. *Pediatrics*. 2010;126(1):e26-e32.
4. Cook JT, Frank DA, Casey PH, et al. A brief indicator of household energy security: associations with food security, child health, and child development in US infants and toddlers. *Pediatrics*. 2008;122(4):e867-e875.
5. Children's HealthWatch. Final: 2013 Children's Healthwatch survey. http://www.childrenshealthwatch.org/methods/our-survey/. Accessed October 3, 2018.
6. Garg A, Butz AM, Dworkin PH, Lewis RA, Thompson RE, Serwint JR. Improving the management of family psychosocial problems at low-income children's well-child care visits: the WE CARE project. *Pediatrics*. 2007;120(3):547-558.
7. Aldana SG, Liljenquist W. Validity and reliability of a financial strain survey. *J Financ Couns Plan*. 1998;9(2):11-19.
8. Sherin KM, Sinacore JM, Li XQ, Zitter RE, Shakil A. HITS: a short domestic violence screening tool for use in a family practice setting. *Fam Med*. 1998;30(7):508-512.

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Appendix F. Disclaimer: This screening tool is from the American Academy of Family Physicians. (2018). The EveryONE Project: Social Needs Screening Tool. https://www.aafp.org/dam/AAFP/documents/patient_care/everyone_project/hops19-physician-form-sdoh.pdf

Appendix G

SDOH Screening Data Collection Spreadsheet

Data Input Worksheet Instructions

Use this the first table in this sheet to record your weekly totals of patients within each step of the screening funnel. The calculations table will automatically calculate the % of patients screened.

Input the # eligible for screening, the total number of screens performed per week into the Data Input table (yellow). The rest of the Calculations table will automatically calculate percentage screened (green).

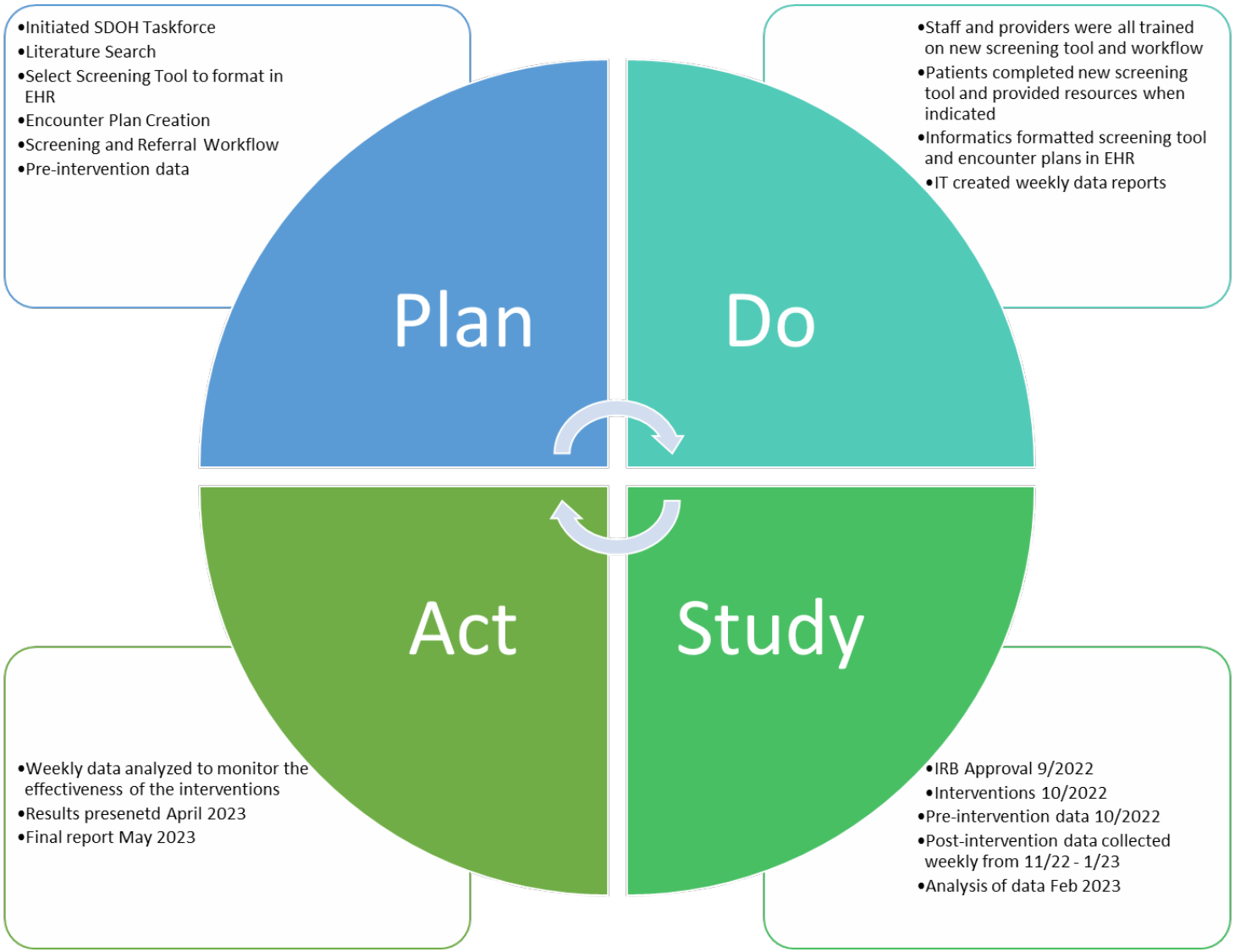
Data Input			Calculations
Week of:	#Eligible for Screening	#Screens offered	% Screened
11/1/22 - 11/4/2022	*18*	*10*	56%
11/7/22 - 11/11/22	*64*	*40*	63%
11/14/22 - 11/18/22	*58*	*43*	74%
11/21/22 - 11/23/22 (short week - HOLIDAY)	*35*	*29*	83%
11/28/22 - 12/2/22	*78*	*44*	56%
12/5/22 - 12/9/22	*82*	*63*	77%
12/12/22 - 12/16/22	*60*	*42*	70%
12/19/22 - 12/23/22	*44*	*34*	77%
12/26/22 - 12/30/22	*15*	*13*	87%
1/3/23 - 1/6/23	*67*	*48*	72%
1/9/23 - 1/13/23	*100*	*81*	81%
1/16/23 - 1/20/23	*54*	*46*	85%
Total	**675**	**493**	**73%**

Appendix H

SWOT Analysis

Appendix I

PDSA



Appendix J

DNP Project Timeline

DNP PROJECT TIMELINE

Marissa Herrera

Fri, 10/21/2022
1

TASK	June 2022 F	July 2022 F	August 2022 F	September 2022 F	October 2022 F	November 2022 F	December 2022 F	January 2023 S	February 2023 S	March 2023 S	April 2023 S	May 2023 S
Meetings												
Faculty Advisor Meeting	X	X	X		X		X		X		X	
Facility Stakeholder Meetings			X		X		X			X		
SDOH Taskforce Meetings			X	X	X	X	X	X	X	X	X	X
Proposal/Paper/Project												
SDOH Screening Tool Literature Review			X									
Completed proposal	X	X	X									
Approval												
IRB Approval for College and Organization			X	X								
Stakeholder and Taskforce Review and Approval			X	X	X							
Implementation												
Update SDOH Tool in EHR					X	X						
Created Encounter Plans with SDOH Tool Built-in					X	X						
Update SDOH Workflow					X	X						
Train Staff and Providers on new workflow						X	X					
Implement updated SDOH Screening Tool and Referral Workflow						X	X					
Data Collection and Evaluation												
Monitoring and Collecting data				Pre-intervention	Pre-interve	X	X					
Evaluate data							X	X	X	X	X	
Analysis and interpretation of data										X	X	
Final Report												
Final Report with dissemination of results										X	X	X
Final Report Presentation											X	X

Appendix K

SDOH Completion Rate Chart