Implementation of a Program to Screen for Social Determinants of Health in Primary Care

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Abstract

The goal of this quality improvement project was to integrate and evaluate the screening of social determinants of health into a primary care practice and incorporate the screenings into the electronical health record. The primary outcome measure was documentation of social determinants of health in the electronic health record. The secondary outcome measure was to provide patients with resources and document resources were given. The participants included one provider and two medical assistants within a clinic. A chi-squared test of independence was used to measure the improvements in screening and documentation of social determinants of health. Content analysis was used to evaluate participant responses about the project. Descriptive statistics was used to illustrate the results of each social determinant of health.

Keywords: social determinants of health; screening primary care; quality improvement; community resources
Implementation of a Program to Screen for the Social Determinants of Health in Primary Care

According to the World Health Organization (WHO) social determinants of health (SDH) are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the circumstances of daily life (WHO, 2020). Evidence has shown that socioeconomic factors such as income, wealth, and education are some of the fundamental factors causing a wide range of health outcomes (Braveman et al., 2011). According to the Centers for Disease Control [CDC] (2020), poverty limits access to healthy foods and safe neighborhoods, and more education is a better predictor of health. Differences in health are striking in communities with poor SDH such as unstable housing, low income, unsafe neighborhoods, or substandard education (CDC, 2020). SDH are linked to a lack of opportunity and to a lack of resources to protect, improve, and maintain health, and together these factors are responsible for health inequalities (CDC, 2020). Social and economic factors have a greater influence on health than clinical care (Krist et al., 2019).

Health disparities have an impact on the economic stability of the United States. Eliminating disparities in morbidity and mortality for people with less than a college education would have an estimated economic value of $1.02 trillion (Shoeni et al., 2011). Research also suggests that eliminating racial and ethnic disparities would reduce medical care costs by $230 billion and indirect costs of excess morbidity and mortality by more than $1 trillion over the next three years (LaVeist, Gaskin & Richard, 2014). Health disparities and equity should be central considerations for all policies of health (Braveman et al., 2011).

Despite the knowledge of the importance of social determinants of health, the U.S. Preventive Services Task Force has reviewed the evidence for screening for only two social
determinants which include intimate partner violence for women of childbearing age and child maltreatment (Krist et al., 2019). Medical screening is the systematic application of a test or inquiry to identify individuals at sufficient risk of a specific disorder to benefit from further investigation or direct preventative action (Wald, 2001). Healthy People 2030 uses a place-based framework that outlines five key areas of SDOH: healthcare access and quality, education access and quality, social community context, economic stability, neighborhood and built environment (CDC, 2020).

**Literature Review**

There is strong evidence showing screening for social determinants is essential, but many factors go undetected because screening is not routinely done in all practices of the primary care setting (Thesis & Reginstein, 2017). Current studies reveal most efforts to screen for SDH address population-based healthcare entities and overlook the potential of collecting the information in a primary clinical setting (Gottlieb, Sandel, & Adler, 2013). Including the SDH into the electronic health record provides clinicians with the ability to track the SDH and the impact of long-term health outcomes (Gottlieb, Sandel, & Adler, 2013). Time management, ethical dilemmas, and inconsistent screening methods have been identified as barriers to screening for social determinants of health (These & Reginstein, 2017; Berry et al., 2017; Garg & Dworkin, 2011; Daniel et al., 2018).

**Screening and Time Constraints**

One of the many factors affecting the lack of screening for social determinants is the amount of time providers perceive it takes to screen the patients (Thesis & Reginstein, 2017). Providers sometimes feel overwhelmed by time constraints so screening should be done in a timely manner (Theses & Reginstein, 2017). Frontline clinical staff often feel ensuring proper
completion of screens or reviewing them in a meaningful way was time consuming on top of their other responsibilities (Berry et al., 2017).

**Ethical Dilemmas**

Screening patients for SDH could strain them by putting them in an ethical dilemma with more concerns to address (Thesis & Reginstein, 2017). There is fear that patients with unmet social situations may have legal needs that open flood gates, outsourcing the community needs making it more difficult to meet the patient’s needs (Theses & Reginstein, 2017). There is also fear that screening the patients will bring up issues that warrant more extended discussion with the patients, but such conversations are challenging to discuss during one visit (Berry et al., 2017).

**Screening Methods and Tools**

SDH screening tools are incorporated into different health settings (Bair-Meritt et al., 2015). Although healthcare providers agree the screening is important it is not routinely done (Gottlieb, Sandel & Adler 2013). SDH screening tools are not consistent among providers and there have been multiple studies where the tools were created by the researchers but have not been incorporated into the primary health care setting (Garg & Dworkin, 2011; Bair-Meritt et al., 2015). There is also a wide selection of screening tools including paper handouts, questionnaires, and electronic screening with variation in methodology of administration (Gottlieb, Sandel & Adler, 2013). Electronic health records have the potential to be a beneficial tool in facilitating data aggregation and thus integration of social determinants of health into the broader healthcare system (Daniel et al., 2018). Technology has the capability of reducing staff burden while increasing screening rates (Berry et al., 2017).
In summary, providers feel addressing social determinants of health is important but when and how to do it while being the most time efficient is still a question. Therefore, this quality improvement program implemented a strategy to create a system change within a clinic to provide the best standard of care in assisting an organization with screening for all social determinants of health. The primary outcome of this project was to document each social determinant of health in the patient’s chart. The secondary outcome of the project was documentation of resources given to the patients identified at risk for one or more of the following social determinants of health: intimate partner violence, alcohol use, financial resource strain, physical activity, transportation needs, social support, depression, food insecurity, housing/utilities, and stress.

Methods

This was a 2-month prospective QI project in the rural adult health primary care clinic.

Participation

A sample of healthcare providers and their medical assistants at a rural primary care clinic were invited to participate. Eligibility required the participants to be a full-time employee within the clinic with knowledge of the electronic health record (EPIC). Participants included one medical doctor and two medical assistants who agreed to participate. The medical doctor was a male and the two medical assistants were females.

Measures

Documentation

Before implementation, retrospective chart reviews were completed to identify the amount of documentation on social determinants of health. Documentation on social determinants of health included intimate partner violence, alcohol use, financial resource strain, physical activity,
transportation needs, social support, depression, food insecurity, housing/utilities, and stress. These were measured to compare prior to implementation with two months after implementation. Postimplementation of the project a chart review was performed for comparison and data collection.

**Participant Surveys**

Participants were sent a survey to assess their satisfaction with the project two weeks after beginning the project and eight weeks into the project. The survey was created using SurveyMonkey and was anonymous. A second survey was sent to participants to assess their compliance with the program and was also anonymous.

**Procedures**

The quality improvement project applied the skill set of a Doctor of Family Nurse Practitioner student along with clinicians and support staff at a primary care clinic. All participants received the same education on correct documentation and used the same electronic health record. The provider and his medical assistants carried out the implementation.

The study was approved by the Lenoir-Rhyne University Institutional Review Board (IRB) and the larger hospital system employing the clinic. A letter seeking permission to recruit project participants along with a form granting permission was completed prior to reaching out to potential participants. All healthcare providers and their medical assistants were invited to participate. Project participants were provided a “No Signature Informed Consent” given in hard copy format before the study began. Participation in the study was voluntary and refusal to participate in the study did not result in any penalty. Prior to implementation the organization required depression as the only social determinant of health for routine screening.
After obtaining IRB approval, a retrospective chart review was done to have for comparison to postimplementation of the program. The PI worked directly with a quality improvement coach from the organization, clinicians within the clinic, and a nurse from the local health department to carry out the interventions. There was in person training on how to correctly document different components of the program. Following the training the participants had one week to log into their electronic health playground to practice correct documentation.

The first part of documentation was screening using the questionnaire and placing the patients answers into the chart. The PI utilized a copy of the questionnaire that was already created by the organization and placed it into the electronic health record. The questionnaire had been pre-approved by the organization but had not been utilized prior to this program. The second part of documentation was a dot phrase created by the PI and uploaded into the participants templates for use. The dot phrase read “Social Determinants of Health screening complete and the appropriate resources were given to the patient based on their social determinants of health risk score”. Typing “.CLDHSDOH” would automatically create the phrase unique to this project and stay in the patients chart. The patient’s chart would automatically populate their SDOH risk and alert the participants of any medium or high-risk social determinants. There was a resource for each different social determinant of health to be given to the patients, based on their needs. The resources were created by the PI using the local health department registered nurse and a case manager ensuring all resources within the community were included. Two examples of the resources created are displayed in Figure B1 and Figure B2.

Two weeks post implementation the participants were sent a survey via SurveyMonkey to answer nine multiple choice questions. The survey was sent through an email account affiliated
with the larger hospital system to ensure anonymity and privacy. The same questions were sent out eight weeks postimplementation. Eight weeks after the program began the participants received another survey with three open ended questions about the completion of the program.

**Data Analysis**

The responses of the screening were extracted from the EHR and placed into Excel spreadsheets. Analysis of the data was conducted using Microsoft Excel and Intellectus Statistics. Each survey question was evaluated using responses from SurveyMonkey. A chi-squared test of independence was used to compare pre implementation and post implementation. A content analysis was performed on the qualitative data from the participant survey responses. Descriptive statistics were used to identify the percentage of completed sections of the screening and furthermore to identify what percentage of patients are at risk for a social determinant of health.

**Ethical Considerations.** To ensure privacy, SSL encryption on SurveyMoney was enabled so data was protected as it moved along communication pathways between the respondent’s computer and the SurveyMonkey servers. The IT department within the organization used Excel to filter data and send via E-mail with a password protected attachment. Within the attachment there was not any patient identifiers used.

**Results**

**Chi-Square Test of Independence**

The results of the Chi-square test were significant based on an alpha value of 0.05, \( \chi^2(1) = 47.32, p < .001 \), suggesting that Month and Screening are related to one another. The following level combinations had observed values that were greater than their expected values: Month (November):Screening (No) and Month (March):Screening (Yes). The following level
combinations had observed values that were less than their expected values: Month (March):Screening (No) and Month (November):Screening (Yes). The percentage of patients who had any one of their social determinants of health screening completed increased from November (41%) to March (78%). The month of November was chosen because it was before the program was introduced to the participants. Before implementation of this program there were not any charts who had all 9-social determinants of health screening completed.

**Content Analysis**

The participants completed the postintervention survey but due to small samples size themes could not be analyzed. From the first survey (Table A4), the participants reported overall satisfaction with the project. The participants also completed a second survey about the program along with specific questions about the dotphrase and resources given to the patients (Table A3). When discussing the dotphrases the participants reported they were always documented. The second question asked about barriers to implementing the project. Some barriers identified were time, remembering to fill out the screening, and participants not giving the screening questions out due to patients not being able to read or write. The third question asked about ways to improve the project in the future. Participants included themes about the patients arriving earlier or being able to fill in the questionnaire in their health portal before arriving. They all felt it was easy to access the resources and documenting the dotphrase helped ensure the patient received the resource.

**Descriptive Statistics**

Descriptive statistics were used to show the documentation on social determinants of health between the months of January 2021 and March 2021 on 443 charts. Table A1 shows the breakdown of each of the 9 social determinants of health percentage of people who the screening
complete. Table A2 shows the completed social determinants of health and further calculates the risk of each determinant.

**Discussion**

This program aimed to improve documentation for screening of SDH in the primary care setting. Screening for social determinants of health can identify patients who may benefit from greater support in one or more areas, thus promoting whole-person care for the entire population, and particularly for those who are marginalized or underserved (Andermann, 2018). Strategies have been identified and addressing unmet social needs as part of routine care may be an important way to improve healthcare quality (Berkowitz et al., 2016). For instance, a 2015 study of two urban academic practices found that difficulty affording or receiving health care (47 percent) and difficulty affording food (40 percent) were the most common types of needs among those with at least one identified need. Unadjusted results from the study suggested that having any unmet need was associated with a greater likelihood of depression, hypertension, diabetes, ED use, missing a clinic appointment, high LDL cholesterol, and high blood pressure levels (Berkowitz et al., 2016). Within this primary care setting, identifying the unmet needs allowed the participants to ensure the patient was given a resource benefiting their specific need. Research shows one way to address health disparities is to match patient needs to existing community resources (Tung & Peek, 2015). This refers patients back to their local communities where a support mechanism is in place to sustain healthy behavior. Interventions that purposefully direct patients to the resources that are available can help patients more effectively navigate their local ecosystems in order to promote health (Tung & Peek, 2015). Resources included community programs and education tailored to their need. Each resource was carefully
put together to ensure all patients received the most beneficial handout, in return connecting them directly with what they needed.

The project was successful in creating a system change involving the providers and medical assistants from this clinic. The system change benefits providers because the National Committee for Quality Assurance currently recognizes social determinants of health as an important measure competency in order to achieve certification status (Coughlin et al., 2019). Not only are primary care systems expected to collect data on social determinants of health within their treated populations, but also to demonstrate a system to continuously inform patient care by utilizing community connections to systematically address needs (Coughlin et al., 2019). By referring valuable community-based assets to patients with chronic illness, health systems may improve population-based outcomes and more strategically allocate limited healthcare dollars in prevention (Tung & Peek, 2015). The use of this project led to significant improvements in screening for all social determinants of health and connecting patients to community resources.

Lack of time was expected to be a theme of this project and participants affirmed this during their open-ended survey questions as time being “somewhat of a barrier”. Lack of time likely contributed to the tool not being integrated at all patient visits.

Limitations

Initially this project was designed to be implemented throughout the entire primary care clinic to all providers and medical assistants. With all providers and medical assistants there was a potential to be 4 providers and 8 medical assistants. Including all of them would have given an opportunity for more robust data to be analyzed.
SARS-CoV-2 Virus pandemic emerged during the midst of planning and implementation of this project which caused an enormous amount of change with the delivery of healthcare. Changes included telehealth visits, minimal in person office visits, visitors not being allowed in the office, and staff being pulled to other locations. The COVID-19 pandemic affected the lives of millions of people around the globe and was declared by the World Health Organization (WHO) as a global emergency worldwide (Irshad et al., 2020). Some of the participants who agreed to participate in the study were floated to a COVID-19 testing site once per week leaving another office employee who was not part of the project to see patients without knowing how to correctly document their social determinants of health. Another significant limitation caused by the pandemic was the inability to do chart audits to analyze dotphrase usage. The quality improvement coach was temporarily relocated to a COVID-19 vaccination clinic and all chart audits were put on hold. Social isolation was one of the most reported factors and could have been due to screening being implemented during the COVID-19 pandemic.

One specific social determinant of health that was least documented on was alcohol use. Further information should be collected to see if the patients were not answering the questions due to their own beliefs or if the participants had a bias toward the alcohol screening

**Conclusion**

Health inequalities continue to be on the frontline of healthcare research and becoming more aware of social determinants of health will allow organizations to provide innovative solutions for vulnerable populations. This was a goal for the system change within this organization and the quality improvement initiative remains sustainable. The resources continue to be available to the staff and screenings are being integrated into the mainstream of the EHR. Moving forward, the resources could be more easily accessible if they were uploaded into the
EHR and automatically print with the patients discharge instructions. The participants sometimes required reminders to use the questionnaire, but this could be prevented if it were made a mandatory part of their workflow. Another implication to be utilized is the social worker working within this practice. Having a referral to a social worker could be beneficial to the clinicians so different entities could work together to meet the needs of the patient. Together, the patient would benefit from time with the social worker and the providers would not feel as pressured to set aside the necessary time it could take to refer patients to community resources.

Recommendations for further study are immeasurable and constantly emerging with the changing healthcare system. There needs to be further studies to evaluate the social determinants of health and specific health outcomes. One suggestion is to evaluate an uncontrolled disease such as hypertension or diabetes and conduct longitudinal studies to see if there would be a positive correlation with identifying social determinants of health and their health outcomes.
References


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https://analyze.intellectusstatistics.com/

https://doi.org/10.1111/iinm.12775


Table 1

*Documented Social Determinants of Health*

<table>
<thead>
<tr>
<th>Social Determinant of Health</th>
<th>Documented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing/ Utilities</td>
<td>28%</td>
</tr>
<tr>
<td>Financial Resource Strain</td>
<td>43%</td>
</tr>
<tr>
<td>Stress</td>
<td>32%</td>
</tr>
<tr>
<td>Depression</td>
<td>71%</td>
</tr>
<tr>
<td>Transportation Needs</td>
<td>49%</td>
</tr>
<tr>
<td>Social Connections</td>
<td>29%</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>42%</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>29%</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>22%</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>45%</td>
</tr>
</tbody>
</table>
### Table 2

*Documented Social Determinants of Health and their Risks*

<table>
<thead>
<tr>
<th>Social Determinant of Health</th>
<th>High Risk</th>
<th>Moderate Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing/ Utilities</td>
<td>.03</td>
<td>.07</td>
<td>.90</td>
</tr>
<tr>
<td>Financial Resource Strain</td>
<td>.02</td>
<td>.07</td>
<td>.99</td>
</tr>
<tr>
<td>Stress</td>
<td>.15</td>
<td>.07</td>
<td>.76</td>
</tr>
<tr>
<td>Depression</td>
<td>.10</td>
<td>X</td>
<td>.99</td>
</tr>
<tr>
<td>Transportation Needs</td>
<td>.02</td>
<td>X</td>
<td>.80</td>
</tr>
<tr>
<td>Social Connections</td>
<td>.60</td>
<td>.18</td>
<td>.22</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>.42</td>
<td>.21</td>
<td>.37</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>.02</td>
<td>.03</td>
<td>.95</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>.16</td>
<td>.22</td>
<td>.62</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>.06</td>
<td>X</td>
<td>.94</td>
</tr>
</tbody>
</table>
### Table 3

**Survey for Resources and DotPhrase**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Participant 1</th>
<th>Participant 2</th>
<th>Participant 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often did you give the resources to the patient when there was a social determinant of health concern?</td>
<td>By the end of the project I gave resources to all of the patients that had any risks</td>
<td>I always gave resources to the patients unless they could not read</td>
<td>There was a resource given to all patients who had a social determinant of health concern</td>
</tr>
<tr>
<td>How often did you document the dotphrase within the patient’s chart once a resource was given?</td>
<td>Each time I gave a resource I documented in the chart a resource was given</td>
<td>Always</td>
<td>Documentation was always completed if a concern was identified</td>
</tr>
<tr>
<td>What barriers did you have in implementing this project?</td>
<td>Once the project was started it was hard to remember to complete screening on all of the patients. Another barrier was when we were moved to other places to work and another medical assistant filled in we did not know until the day of and could not train her on proper documentation</td>
<td>Some barriers I noticed within patient populations were patients not being able to read or write or not being able to see the questions</td>
<td>Some of the barriers included patients asking questions about other resources that might be available for their family members and the patients would want more resources to take with them</td>
</tr>
<tr>
<td>What suggestions do you have for the future in making this project sustainable?</td>
<td>In the future it would be beneficial if we could have the patients fill out the information in their health portal as most of our patients have access to their health portals</td>
<td>I think this project had the potential to be sustainable if the patients arrive 15 minutes prior to their appointment and are able to fill in all of the questions before they are called back to the office, some of the patients did not have time to read all of the</td>
<td>I think this project would be sustainable if the patients had adequate time to fill in the questionnaire and their resources could be given to them with their discharge papers. Another suggestion I have would be to incorporate this screening into annual well visits and new patients only instead of having to do them on every patient. Eventually the screening</td>
</tr>
</tbody>
</table>
questions and fill in the answers would become part of the well visits and could be completed yearly. This would be more sustainable and could give the patients and providers more time to identify patient needs or concerns.
### Table 4

*Satisfaction Survey Results*

<table>
<thead>
<tr>
<th>Questions</th>
<th>Participant 1</th>
<th>Participant 2</th>
<th>Participant 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well do you feel you are able to manage your time and address the social determinants of health</td>
<td>Somewhat of a problem</td>
<td>Somewhat of a problem</td>
<td>Somewhat of a problem</td>
</tr>
<tr>
<td>Do you think addressing the social determinants of health helps you better understand your patients and their needs</td>
<td>Yes</td>
<td>Somewhat</td>
<td>Yes</td>
</tr>
<tr>
<td>How easy is it to access the resources to give the patient once a social determinant of health has been identified as a risk?</td>
<td>Very Easy</td>
<td>Very Easy</td>
<td>Very Easy</td>
</tr>
<tr>
<td>Is it difficult to include a dot phrase in your note after giving the patient a resource?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Is it difficult to chart the social determinants of health in the ValueCare Section of EPIC?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Do you think this project helped provide better overall care to the patients in the clinic?</td>
<td>Yes</td>
<td>Somewhat better care</td>
<td>Somewhat better care</td>
</tr>
<tr>
<td>Do you think adding the dot phrase in the patients chart is beneficial in closing the gap between the patients needs and their resources?</td>
<td>Yes</td>
<td>Yes</td>
<td>Somewhat</td>
</tr>
</tbody>
</table>
Do you think this project benefits the patients as a whole?  
Yes  
Somewhat  
Yes

Overall, are you satisfied with the project?  
Yes  
Yes  
Yes
Figure 1

Financial Resource Strain Resource

**Caldwell County Financial Assistance**

Information on assistance programs, help with bills, and other aids

**Yokefellow**

Lenoir based Caldwell County Yokefellow Inc. (phone number 928-754-7588) has the mission of running programs that provide for the emergency needs of low-income residents of Caldwell County and Lenoir North Carolina. They accomplish this goal by providing qualified individuals and families with free emergency food, clothing, financial assistance for paying for expenses which are primarily for fuel, utilities, housing, rent, and medical bills. They also provide access to household goods.

**Caldwell County DSS**

In select, and carefully screened cases, DSS - Caldwell County (Emergency Assistance) may be able to provide emergency financial assistance and grants for paying bills for the individual and families in the county. The agency can help people cover basic needs and expenses in carefully screened cases that struggling individuals may face. Dial 928-456-6200.

**South Caldwell Christian Ministries**

South Caldwell Christian Ministries (928-396-6000) offers numerous assistance programs. The organization serves the needs of elderly, working poor, and homeless in northern Caldwell County. They accomplish this goal through the cooperation of staff of the United Way, member churches, businesses, local government, nonprofit groups, and the public. Assistance is provided to qualified individuals through items such as clothing, financial assistance for paying bills, free food, fuel, furniture, household needs, moving, food delivery to the elderly, school supplies, medical needs, counseling, and other services.

**Lenoir Soup Kitchen**

Lenoir Soup Kitchen located at 113 College Ave, or call them at 928-759-1411. The Lenoir Soup Kitchen will provide a hot, nutritious meal five days a week to any who come through its doors seeking for food. There are no costs involved, no questions, and no forms are required of guests.

**Blue Ridge Community Action Inc.**

This nonprofit organization runs several programs for the working poor and low-income residents. They also administer several of their own programs for low-income individuals in the area. They receive funding from local, federal, state, and community-based organizations. Call 928-436-6225.

*Note.* Created by Macy Johnson on 12-29-2020
TRANSPORTATION SERVICES: CALDWELL COUNTY

SPECIALIZED TRANSPORT

828-438-0447
Provides 24/7 transportation from medical appointments to personal needs including basic taxi services, transportation for people with disabilities, transport to nursing homes and hospitals and much more!

GREENWAY TRANSIT

828-464-9444
Provides transportation services in the area of Caldwell, Catawba, Alexander and Burke County.

Note. Created by Macy Johnson 12-29-2020