Associations Between Patients’ Unmet Social Needs and Self-Reported Health Confidence at One Primary Care Clinic

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Abstract
Social determinants of health affect a person’s health at least as much as their interactions with the healthcare system. Increased patient activation and self-efficacy are associated with decreased cost and improved quality. Patient-reported health confidence has been proposed as a more easily measured proxy for self-efficacy. Evaluation of the association between unmet social needs and health confidence is limited. Our objective was to identify and address our patients’ unmet social needs and assess health confidence levels. From November 2017 through July 2018 we screened 2018 patients of an urban academic family medicine residency practice for unmet social needs, measured their health confidence, and made referrals to community resources if desired. Patients reporting the presence of any social need reported lower health confidence scores on average than those with no needs (8.49 vs 9.30, median 9 vs 10, Wilcoxon test \( P < .001 \)). Low health confidence scores (<7) were strongly associated with number of needs (\( P < .001 \)) after adjusting for age, gender, race, ethnicity, payer, and visit type (1 vs 0 needs, odds ratio [OR] = 2.566, 95% CI 1.546-4.259; 2 or more vs 0 needs, OR = 6.201, 95% CI 4.022-9.561). Results of this quality improvement project suggest that patients with unmet social needs may have decreased perceived ability to manage health problems. Further study is needed to determine if this finding is generalizable, and if interventions addressing unmet social needs can increase health confidence.

Keywords
social needs, social determinants of health, screening, health confidence, self-efficacy, primary care

Introduction
Social determinants of health, such as socioeconomic status, education, and social support, exert at least as much influence over a person’s health as their interactions with the healthcare system.1-3 Attempting to improve individual and population health, medical settings are turning their attention to their patients’ unmet social needs.4 Health care–based interventions to identify and address social needs have demonstrated the potential to decrease utilization5 and improve cardiovascular risk factors,6 though robust research on the impact of such programs is lacking.

Currently, 6 in 10 Americans have a chronic disease7 and require support for self-management of these conditions.8-10 A lower capability to self-manage has been associated with higher costs.11-13 A higher capability to self-manage has been associated with improved health outcomes in a variety of chronic conditions.11-13

Patient engagement, activation, empowerment, and self-efficacy are overlapping concepts addressing patients’ and caregivers’ capability, readiness to act, and/or perceived ability to manage chronic illness. Dartmouth Institute researchers’ validated 1-question health confidence measure “How confident are you that you can control and manage most of your health problems?” (0 = not very confident, 10 = very confident, scores ≥7 associated with a higher level of confidence) has been proposed as a succinct proxy measure for patient engagement, which can inform patient-care team discussions (available as at healthconfidence.org, FNX Corp, and Trustees of Dartmouth College).14-16

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Several studies evaluating financial strain and social isolation on self-efficacy or health confidence have been published, but research examining the relationship between the number of unmet social needs and low or high health confidence has not occurred, in part because global screening for a bundle of unmet social needs in primary care patients is a relatively new process. This practice is becoming more common with the availability of several screening tools and the promotion of social needs screening process implementation in primary care by value-based programs such as Comprehensive Primary Care Plus (CPC+) and by the National Committee for Quality Assurance. Furthermore, measuring the effects of programs targeting social needs is challenging as improvements in access to food, transportation, housing, and so on, will likely affect not just a single laboratory value but instead ripple across many facets of health.

In November 2017, we implemented a screening and referral program for social needs among patients at the AF Williams Family Medicine Clinic in Denver, Colorado. Staff and providers had long been aware of the challenging life circumstances faced by many of our patients but felt incapable of acting until a social worker was added to our staff in 2015. Shortly after she joined the team, there was abundant referral volume, but not all patients engaged with the social worker after a need was discovered. As a result, we became curious if health confidence levels could identify patients most likely to follow up with our social worker. The purpose of this quality improvement pilot was to uncover unmet social needs to inform individual care plans and provide referrals to community services. The one question health confidence assessment was added to our social determinant screening questionnaire as a potential way of identifying patients most likely to engage in care management services. This article reports on the association between unmet social needs and health confidence in 1959 screened patients at an urban, academic hospital-associated family practice residency clinic. This work was carried out with funding from the University of Colorado School of Medicine Clinical Effectiveness and Patient Safety Small Grants Program. Our procedures were reviewed by the Colorado Multiple Institution Review Board and determined to be not human subjects research for the purpose of quality improvement (COMIRB Protocol 17-1392).

Methods

Setting

This quality improvement pilot took place at an urban, hospital-based, family medicine residency clinic. This clinic includes 20 resident physicians, 24 faculty physicians, and 2 advanced practice providers. A total of 18,600 patients are empaneled at this site with approximately 46,000 patient visits per year. Of the empaneled patients, about 20% have public insurance and the remainder have commercial insurance.

Social Needs Screening

We created an 11-item screening questionnaire which assessed for transportation barriers, social isolation, food insecurity, financial strain, housing instability, personal safety, health literacy, health confidence, and desire for assistance with identified social needs (see Supplemental Appendix 1). Screening items pertaining to social isolation, food insecurity, financial strain, health literacy, and health confidence have been previously tested for reliability and validity by their authors. The transportation and personal safety items have been published without details of their development. Questions on housing and desire for assistance were created de novo. Health confidence was assessed in the same survey using the Dartmouth Institute researchers’ validated one-question health confidence measure described above (available as at healthconfidence.org, FNX Corp, and Trustees of Dartmouth College). Except for health literacy and health confidence, questions were adapted as needed to fit yes or no answer format. In an effort to decrease stigma and increase item sensitivity, the question on financial strain was modified to ask if patients “felt stressed” about making ends meet instead of “have difficulty” making ends meet. The final screening questionnaire was pilot tested with 34 patients to evaluate its face validity and patients’ level of comfort with the questions. As this was a small quality improvement pilot, additional tests of validity and reliability were not pursued.

Adult and pediatric patients presenting for new patient visits, annual exams, or obstetric intake appointments were the target population for screening. These groups were selected because they are easily identified by the front-desk staff responsible for distributing the screening questionnaire. Patients were given the paper questionnaire on check-in for their appointment, completed it independently, and returned it to a medical assistant. For pediatric patients, the parent or guardian was asked to complete the questionnaire. The medical assistant entered the results into the electronic medical record and notified the clinician if any needs were identified. Patients requesting assistance with social needs were provided relevant community referrals in person or by telephone after the visit by the clinic’s social worker or volunteer patient navigators.

Data Collection

At the conclusion of the social needs screening pilot, we retrieved a report from the electronic medical record summarizing visits occurring between November 2017 through July 2018. Data collected included visit date and...
type, patient demographics, and results of the social needs questionnaire.

Data Analysis

Descriptive statistics (means, SD, frequencies) were computed initially. Screened and unscreened patients were compared on available data using chi-square tests. The primary outcome for analysis was the health confidence score. Health confidence scores between groups of interest were compared using nonparametric tests (Wilcoxon) since the distribution of scores was highly skewed. Because of skewness, the health confidence score was dichotomized as previously described14-16 (low confidence 1-6, high confidence 7-10). Multivariable logistic regression analysis was performed to further explore relationships between the number of social needs (0, 1, 2 or more) and low health confidence, adjusting for age, gender, race, ethnicity, visit type, and payer. Associations between independent variables and health confidence scores are considered to be significant if \( P < .05 \). Independent variables that were significant in the multivariable model were further tested for possible interaction effects. All analyses were performed using SAS version 9.4 (SAS Institute Inc, Cary, NC).

Results

A total of 2018 patients were screened and 1959 of these patients completed the health confidence question. The majority of the screened patients were new patients (56.4%, \( n = 1138 \)), carried private insurance (83.4%, \( n = 1682 \) vs 12.8%, \( n = 258 \) with either Medicare or Medicaid), and identified as white (62.3%, \( n = 1261 \); Table 1). A total of 532 (27.16% of the screened population) reported having one or more social needs. The prevalence of unmet social needs in this population is previously reported. Among screened patients, prevalence of social needs varied by type of visit (\( P = .011 \)), payer (\( P < .001 \)), and race (\( P < .001 \)), but not age, gender, or ethnicity (all \( P s > .05 \); Table 2). The mean health confidence score for the screened population that answered the health confidence question was 9.08. Patients with the presence of one or more social need reported lower health confidence scores than those with no needs (mean 8.49 vs 9.30, median 9 vs 10, Wilcoxon test \( P < .001 \)).

Health confidence scores in the screened population were greatly skewed toward high health confidence (Figure 1). The relationship between unmet social needs and low health confidence (score of less than 7) was further explored in a multivariate logistic regression analysis.14-16 Social determinants of health needs were categorized as follows: 0 (\( n = 1427 \)), 1 (\( n = 278 \)), 2 or more (\( n = 254 \)). Bivariate analysis showed that patients with low health confidence were more likely to report one or more social need than those with high health confidence (\( P < .001 \), Table 3). The adjusted multivariable model is shown in Table 4. In the adjusted model low health confidence was strongly associated with the number of needs (\( P < .001 \)) and payer (\( P = .002 \)) but not age, gender, race, ethnicity, or visit type (all \( P s > .05 \)). Patients reporting social needs were more likely to report low health confidence compared with patients who did not report social determinants of health needs (1 vs 0 needs, odds ratio [OR] = 2.566; 95% CI 1.546-4.259; 2 or more vs 0 needs, OR = 6.201, 95% CI 4.022-9.561). Additionally, we tested for possible interactions between the 2 significant independent variables (needs and payer) and found the interaction effect to be nonsignificant (\( P = .315 \)).

Discussion

We found that patients at our clinic reporting unmet social needs had lower mean health confidence scores than patients who did not report social needs. In multivariate analysis, there was a strong association between low health confidence and the number of needs reported, with the odds of low health confidence increasing with each additional social need. This latter finding is consistent with existing literature examining the relationship between specific social needs (ie, financial strain, social isolation) and health confidence or similar concepts.33,34

Although it is intuitive that challenging life circumstances can hinder chronic disease management, the exact nature of the relationship between health confidence and social needs has not been defined. Do social needs directly decrease health confidence levels, or do systemic forces such as racism, wealth inequality, rurality, and so on, create social needs and diminish health confidence in parallel? If there is a causal link between social needs and low health confidence, what is the magnitude of this relationship and which social needs are most influential? The answers to these questions have significant implications for clinical care and chronic care management.

Based on our finding of a strong association between number of social needs and low health confidence among our patients, one may wonder if addressing social needs increases health confidence. Nguyen et al33 found that community referrals to address social needs did not result in a change in self-efficacy among patients with diabetes, however a minority of the patients in the small sample made contact with the agency to which they were referred. Two out of 3 studies on a community health worker program found an increase in patient activation,36-38 but because the intervention included attention to social needs as well as traditional self-management support methods, it is not possible to determine which aspects of the program were responsible for the change in patient activation. Further research is needed looking at changes in health confidence following resolution of social needs, without additional self-management support programming.
Our results suggest that there is an association between number of unmet social needs and low health confidence, and a better understanding of this relationship may be useful in clinical practice both at the population and individual patient level. If addressing social needs can substantially improve health confidence, incorporating attention to social needs into chronic disease management should improve quality and reduce cost. If future research finds that certain social barriers impact the ability to manage chronic conditions more than others, social needs screening could help identify candidates for more intensive care team services. Clinical teams with limited social work or care management resources but a desire to attend to their patients’ life circumstances could focus their efforts on the social issues with the greatest effect on health confidence. In individual patient encounters, our findings highlight that identifying unmet social needs should prompt a broader discussion of barriers to self-management and use of shared decision making. In clinical practice, providers can find themselves torn between guideline-concordant care and creating individualized care plans that patients can realistically carry out (ie, minimally disruptive medicine). A proven association between increasing social need and lower health confidence could justify prioritization of social concerns over guideline concordant care.

Knowing that high health confidence is associated with lower cost and higher quality, health confidence scores may be used in research and evaluation to measure the impact of social needs screening and referral programs like the one described here. Although disease-oriented outcomes for

| Table 1. Characteristics of Quality Improvement Project Population. |
|---------------------------------------------------------------|
| Characteristic                                               | Eligible for Screening but Not Screened, n (%) | Screened Population, n (%) | P (Screened vs Unscreened) |
|---------------------------------------------------------------|
| Total                                                         | 3065                                           | 2018                        |
| Number of needs, all screened                                 |                                                |                             |
| No needs                                                     | n/a                                            | 1477 (73.19)                |                             |
| ≥1 need                                                      |                                                | 541 (26.8)                  |                             |
| Number of needs, those who completed social needs screen and health confidence | n/a                                            | 1952                        |
| No needs                                                     | n/a                                            | 1419 (72.7)                 |                             |
| ≥1 need                                                      |                                                | 533 (27.3)                  |                             |
| Visit type                                                   |                                                |                             |
| Adult wellness visit                                         | 1715 (55.95)                                  | 722 (35.78)                 | <.0001                      |
| New adult patient visit                                      | 959 (31.29)                                   | 1138 (56.39)                |                             |
| Pediatric wellness visit                                     | 286 (9.33)                                    | 101 (5.00)                  |                             |
| New pediatric patient visit                                  | 105 (3.43)                                    | 57 (2.82)                   |                             |
| Payer                                                        |                                                |                             |
| Commercial                                                  | 2188 (71.39)                                  | 1682 (83.35)                | <.0001                      |
| Medicare                                                    | 383 (12.50)                                   | 141 (6.99)                  |                             |
| Medicaid                                                    | 348 (11.35)                                   | 117 (5.80)                  |                             |
| Other                                                       | 146 (4.76)                                    | 78 (3.87)                   |                             |
| Age (years)                                                  |                                                |                             |
| 0-17                                                         | 373 (12.17)                                   | 152 (7.53)                  | <.0002                      |
| 18-64                                                       | 2307 (75.27)                                  | 1722 (85.33)                |                             |
| 65+                                                         | 380 (12.40)                                   | 141 (6.99)                  |                             |
| Race                                                         |                                                |                             |
| White                                                       | 1781 (58.28)                                  | 1261 (62.27)                | <.008                       |
| Black/African American                                       | 434 (14.20)                                   | 220 (10.86)                 |                             |
| Asian                                                       | 105 (3.44)                                    | 72 (3.56)                   |                             |
| American Indian                                             | 10 (0.33)                                     | 2 (0.10)                    |                             |
| Native Hawaiian                                             | 7 (0.23)                                      | 4 (0.20)                    |                             |
| More than one race                                          | 84 (2.75)                                     | 43 (2.12)                   |                             |
| Other                                                       | 374 (12.24)                                   | 235 (11.60)                 |                             |
| Unknown                                                     | 261 (8.54)                                    | 188 (9.28)                  |                             |
| Ethnicity                                                    |                                                |                             |
| Hispanic                                                    | 423 (13.80)                                   | 271 (13.43)                 | .13                         |
| Non-Hispanic                                                | 2417 (78.86)                                  | 1566 (77.60)                |                             |
| Unknown                                                     | 225 (7.34)                                    | 181 (9.28)                  |                             |

Abbreviation: n/a, not applicable.
### Table 2. Characteristics of Patients With and Without Social Needs.

| Characteristic                           | No Need Identified, n (%) | At Least One Need Identified, n (%) | P     |
|-----------------------------------------|---------------------------|------------------------------------|-------|
| Total                                   | 1427                      | 532                                |       |
| Visit type                              |                           |                                    |       |
| Adult wellness visit                    | 533 (37.4)                | 167 (31.4)                         | .0106 |
| Pediatric wellness visit                | 80 (5.6)                  | 22 (4.1)                           |       |
| New patient visit (adult/peds)          | 814 (57.0)                | 343 (64.5)                         |       |
| Payer                                   |                           |                                    |       |
| Commercial                              | 1216 (85.2)               | 413 (77.6)                         | .0002 |
| Medicare                                | 87 (6.1)                  | 45 (8.5)                           |       |
| Medicaid                                | 68 (4.8)                  | 50 (9.4)                           |       |
| Other                                   | 56 (3.9)                  | 24 (4.5)                           |       |
| Age (years)                             |                           |                                    |       |
| 0-17                                    | 118 (8.3)                 | 36 (6.8)                           | .5139 |
| 18-64                                   | 1209 (84.1)               | 457 (85.9)                         |       |
| 65+                                     | 97 (6.8)                  | 39 (7.3)                           |       |
| Gender                                  |                           |                                    |       |
| Male                                    | 801 (56.1)                | 299 (56.2)                         | .8298 |
| Female                                  | 625 (43.8)                | 233 (43.8)                         |       |
| Race                                     |                           |                                    |       |
| White                                   | 936 (65.59)               | 306 (57.5)                         | <.0001|
| Black/African American                  | 119 (8.34)                | 94 (17.7)                          |       |
| Asian                                   | 53 (3.7)                  | 15 (2.8)                           |       |
| American Indian                         | 3 (0.2)                   | 3 (0.6)                            |       |
| Other/unknown                           | 316 (22.1)                | 114 (21.4)                         |       |
| Ethnicity                                |                           |                                    |       |
| Hispanic                                | 193 (13.5)                | 69 (13.0)                          | .8919 |
| Non-Hispanic                            | 1108 (77.7)               | 413 (77.6)                         |       |
| Unknown                                 | 126 (8.8)                 | 50 (9.4)                           |       |

**Figure 1.** Distribution of health confidence scores among screened population.
such programs are important to look for, they can take months or years to change and only capture one dimension of overall health in the face of an intervention that may have complex and unanticipated results.

There are several limitations to our project. As a quality improvement project in a single urban academic family medicine residency clinic, our findings are not generalizable. Additionally, screening was performed during new patient visits and annual exams. Assuming that attending to preventive care requires increased self-management capacity as compared with seeking acute care, this may have biased our results toward a population with higher health confidence. Our results were highly skewed toward high confidence (≥7), and as such the median difference of 9 versus 10 in health confidence scores between those without or with unmet social needs is difficult to interpret clinically as health confidence scores of 9 and 10 are both considered to be very confident.6 Furthermore, screening via paper form may have disproportionately underscreened those with limited literacy. Because we were only accepting small volumes of new Medicaid patients during the screening period, targeting new patients likely resulted in higher rates of screening commercially insured patients than if we had screened all patients. Although we completed multivariable modeling to identify the role of potentially confounding factors such as race, gender, or insurance type, this analysis did not include a measure of medical complexity. Prior research has shown that social determinants of health are associated with health care utilization, one facet of medical complexity.40,41 It is possible that the association we found between social needs and health confidence is influenced or possibly driven by a patient’s medical complexity. Our analysis is unable to determine if and to what extent medical complexity is related to social needs and health confidence.

Results of this quality improvement project suggest that patients with unmet social needs may have decreased perceived ability to manage health problems and the likelihood of this increases with the number of unmet social needs. Although we completed multivariable modeling to identify the role of potentially confounding factors such as race, gender, or insurance type, this analysis did not include a measure of medical complexity. Prior research has shown that social determinants of health are associated with health care utilization, one facet of medical complexity.40,41 It is possible that the association we found between social needs and health confidence is influenced or possibly driven by a patient’s medical complexity. Our analysis is unable to determine if and to what extent medical complexity is related to social needs and health confidence.

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Supplemental Material

Supplemental material for this article is available online.

References

1. Galea S, Tracy M, Hoggatt KJ, Dimaggio C, Karpati A. Estimated deaths attributable to social factors in the United States. *Am J Public Health*. 2011;101:1456-1465.
2. McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA*. 1993;270:2207-2212.
3. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004;291:1238-1245.
4. Social Interventions Research & Evaluation Network. National surveys gauging prevalence of social care-related activities in the health care sector. https://sirenetwork.ucsf.edu/node/19671. Accessed December 11, 2019.
5. Schickedanz A, Sharp A, Hu YR, et al. Impact of social needs navigation on utilization among high utilizers in a large integrated health system: a quasi-experimental study. *J Gen Intern Med*. 2019;34:2382-2389.
6. Berkowitz SA, Hulberg AC, Standish S, Reznor G, Atlas SJ. Addressing unmet basic resource needs as part of chronic cardiometabolic disease management. *JAMA Intern Med*. 2017;177:244-252.
7. Centers for Disease Control and Prevention. Chronic diseases in America. https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm. Updated October 23, 2019. Accessed April 8, 2020.
8. American Academy of Family Physicians. Joint principles of the patient-centered medical home. https://www.aafp.org/dam/AAFP/documents/practice_management/pcmh/initiatives/PCMHJoint.pdf. Published March 7, 2007. Accessed December 10, 2019.
9. Von Korff M, Gruman J, Schaefer J, Curry SJ, Wagner EH. Collaborative management of chronic illness. *Ann Intern Med*. 1997;127:1097-1102.
10. Marks R, Allegrante JP, Lorig K. A review and synthesis of research evidence for self-efficacy-enhancing interventions for reducing chronic disability: implications for health education practice (part II). *Health Promot Pract*. 2005;6:148-156.
11. Hibbard JH, Greene J, Overton V. Patients with lower activation associated with higher costs; delivery systems should know their patients’ ‘scores’. *Health Aff (Millwood)*. 2013;32:216-222.
12. Saft HL, Kilaru S, Moore E, Enriquez M, Gross R. The impact of a patient activation measure on asthma outcomes: a pilot study. *Chest*. 2008;134(suppl 2):2S.
13. Mosen DM, Schmitt SD, Hibbard J, Sobel D, Remmers C, Bellows J. Is patient activation associated with outcomes of care for adults with chronic conditions? *J Ambul Care Manage*. 2007;30:21-29.
14. HowsYourHealth. Your personal guide for the best health and medical care. https://www.howsyourhealth.org. Accessed December 10, 2019.
15. Wasson JH, Coleman EA. Health confidence: a simple, essential measure for patient engagement and better practice. *Fam Pract Manag*. 2014;21:8-12.
16. Wasson JH, Johnson DJ, Mackenzie T. The impact of primary care patients’ pain and emotional problems on their confidence with self-management. *J Ambul Care Manage*. 2008;31:120-127.
17. Gleason KT, Tanner EK, Boyd CM, Sacczynski JS, Szanton SL. Factors associated with patient activation in an older adult population with functional difficulties. *Patient Educ Couns*. 2016;99:1421-1426.
18. Oliver DP, Patil S, Benson JJ, et al. The effect of internet group support for caregivers on social support, self-efficacy, and caregiver burden: a meta-analysis. *Telemed J E Health*. 2017;23:621-629.
19. Rashid AA, Zuhra H, Tan CE. Social support, self-efficacy and their correlation among patients with type 2 diabetes mellitus: a primary care perspective. *Med J Malaysia*. 2018;73:197-201.
20. Wasson JH. A patient-reported spectrum of adverse health care experiences: harms, unnecessary care, medication illness, and low health confidence. *J Ambul Care Manage*. 2013;36:245-250.
21. National Association of Community Health Centers. PRAPARE implementation and action toolkit. http://www.nachc.org/research-and-data/prapare/toolkit/. Accessed March 25, 2019.
22. Alley DE, Asomugha CN, Conway PH, Sanghavi DM. Accountable health communities—addressing social needs through Medicare and Medicaid. *N Engl J Med*. 2016;374:8-11.
23. Centers for Medicare & Medicaid Services. CPC+ care delivery requirements crosswalk. https://innovation.cms.gov/Files/x/cpcplus-practicecaredlreqs.pdf. Accessed January 29, 2020.
24. National Committee for Quality Assurance. Population health management resource guide. https://www.ncqa.org/wp-content/uploads/2018/08/20180827_PHM_PHM_Resources_Guide.pdf. Accessed January 29, 2020.
25. de Jong Gierveld J, Tilburg TV. A six-item scale for overall, emotional and social loneliness: confirmatory tests on new survey data. *Res Aging*. 2006;28:582-598.
26. 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:e26-e32.
27. Brcic V, Eberdt C, Kaczorowski J. Development of a tool to identify poverty in a family practice setting: a pilot study. *Int J Family Med*. 2011;2011:812182.

28. Chew LD, Griffin JM, Partin MR, et al. Validation of screening questions for limited health literacy in a large VA outpatient population. *J Gen Intern Med*. 2008;23:561-566.

29. Wasson JH, Benjamin R, Johnson D, Moore LG, Mackenzie T. Patients use the internet to enter the medical home. *J Ambul Care Manage*. 2011;34:38-46.

30. Manchanda R, Gottlieb L. *Upstream Risks Screening Tool and Guide V2.5*. Los Angeles, CA: HealthBegins; 2015.

31. Stanford Medicine. Domestic abuse. http://domesticabuse.stanford.edu/screening/how.html. Accessed January 28, 2017.

32. Bleacher H, Lyon C, Mims L, Cebuhar K, Begum A. The feasibility of screening for social determinants of health: seven lessons learned. *Fam Pract Manag*. 2019;26:13-19.

33. Ho L, Haresch JW, Nunlist M, Schwarz A, Wasson JH. Improvement of patients’ health confidence: a comparison of 15 primary care practices and a national sample. *J Ambul Care Manage*. 2013;36:235-240.

34. Goodridge D, Bandara T, Marcinuk D, et al. Promoting chronic disease management in persons with complex social needs: a qualitative descriptive study. *Chron Respir Dis*. 2019;16:1479973119832025.

35. Nguyen AL, Angulo M, Haghi LL, et al. A clinic-based pilot intervention to enhance diabetes management for elderly Hispanic patients. *J Health Environ Educ*. 2016;8:1-6.

36. Kangovi S, Mitra N, Grande D, Huo H, Smith RA, Long JA. Community health worker support for disadvantaged patients with multiple chronic diseases: a randomized clinical trial. *Am J Public Health*. 2017;107:1660-1667.

37. Kangovi S, Mitra N, Grande D, et al. Patient-centered community health worker intervention to improve posthospital outcomes: a randomized clinical trial. *JAMA Intern Med*. 2014;174:535-543.

38. Kangovi S, Mitra N, Norton L, et al. Effect of community health worker support on clinical outcomes of low-income patients across primary care facilities: a randomized clinical trial. *JAMA Intern Med*. 2018;178:1635-1643.

39. Spencer-Bonilla G, Quinones AR, Montori VM; International Minimally Disruptive Medicine Workgroup. Assessing the burden of treatment. *J Gen Intern Med*. 2017;32:1141-1145.

40. Berkowitz SA, Seligman HK, Meigs JB, Basu S. Food insecurity, healthcare utilization, and high cost: a longitudinal cohort study. *Am J Manag Care*. 2018;24:399-404.

41. Hatef E, Searle KM, Predmore Z, et al. The impact of social determinants of health on hospitalization in the Veterans Health Administration. *Am J Prev Med*. 2019;56:811-818.