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Improving Identification of Food-Insecure Patients in an Outpatient Clinic Setting

Oluwaseun O. Acquah, MD | Amanda M. Honsvall Hoefler, MD | Isaac Zoller, MD | Lynn P. Manning, MD | Donald J. Pine, MD | Richard F. Mitchell, MD, MS

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Abstract

Introduction: Food insecurity (FI) is defined as limited or uncertain access to enough nutritious food for all household members to lead an active and healthy life. In 2017, roughly 12% of US households reported FI. FI screening is not standard practice despite FI's association with poor health outcomes. This study compared FI screening strategies in a community-based family medicine residency clinic to determine which strategies identified the largest number of FI patients.

Methods: We conducted this study using a validated two-question screening tool with high sensitivity and specificity for identifying FI. Three implementation strategies of the screening tool were tested: two clinician-initiated and one staff-initiated. Data measured included opportunities to screen, patients actually screened, and the number of positive (disclosure) responses.

Results: Clinician-initiated screening rates increased when clinicians followed a standard note template with embedded FI questionnaire vs no template (58.6% vs 7.1%). Despite this improvement, staff-initiated screening returned an even higher screening rate (95.2%). The disclosure of FI determined by staff-initiated screening was also higher (12.2%, similar to previously published data) than clinician-initiated screening (2.3%).

Conclusions: Staff-initiated screening for FI was the best way of identifying FI patients and yielded results consistent with local and national estimates. Clinicians did not screen patients for FI often enough for this approach to be effective, but embedding FI screening into templated notes improved clinician screening rates. Disclosure of FI when staff conducted screening far exceeded disclosure when screening was initiated by clinicians.

Introduction

Food insecurity (FI) is defined as "limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."[1] FI is associated with adverse health outcomes. Even when controlling for confounders such as income and housing instability, FI is associated with high rates of obesity and diet-related chronic disease.[2] FI is particularly harmful for youth, predisposing children to poorer general health, more frequent hospitalizations, slower recovery from illness, poorer academic performance, and higher levels of behavioral and emotional problems from preschool through adolescence.[3]

According to the United States Department of Agriculture, 11.8% of households and 15.7% of households with children reported FI in 2017.[4] In 2014, only 58% of food insecure households participated in one or more of three federal assistance programs, despite the programs' role in alleviating poverty, FI, and improving well-being.[4,5] In

Hennepin County, Minnesota, 12% of all people are estimated to be food insecure. Our clinic population is demographically similar to the county as a whole in age breakdown, gender, and race/ethnicity (ie, 68% Caucasian, 18% African-American, 6.5% Hispanic in our clinic, vs 68% Caucasian, 13.6% African-American, and 7.0% Hispanic in Hennepin County).[5,8,9] Despite the role of FI as a social determinant of health (SDH), FI screening is currently not standard practice. Our objective was to test clinic processes for FI screening to determine which method would identify the largest number of patients who could benefit from FI intervention.

Methods

We conducted the study using a validated two-question screening tool (97% sensitivity, 83% specificity for FI), where a positive screen is defined as a "yes" response to at least one of the two questions (Figure 1).[3,7] We conducted the study in a community-based family medicine residency clinic between 2015 and 2018. We adjusted our workflow serially to optimize the number of FI patients identified. In methods 1 and 2, clinicians could either opt in or opt out of asking patients the screening questions during well exams (Table 1). In method 3, frontline staff gave each patient a card with the screening questions during check in, and nursing staff collected the cards while rooming patients. If a patient did not record answers on the card, they were still counted in the number of screening opportunities, but not in the number of completed screens.

Table 1 describes the different methods tested, each lasting 4 to 6 weeks. Data collected included the number of patient encounters where screening could occur, the number where patients were screened, and the number of positive screens. We calculated screening rates as the number of completed screens vs opportunities (Figure 2), and we calculated disclosure rates as the number of positive screens vs completed screens (Figure 3).

A single-site convenience sample was used, and our FI team consisted of the following members with their approximate numbers in parentheses: residents (18), faculty (11-12), frontline staff (3-4), nursing (3-4), social work (3), care coordinator (1), and clinic management (1). There was variation in the individual participants from method to method. Residents led the development and design of each screening trial. All team members received education on FI before and during the study. Our social work/care coordinator team met with patients who disclosed FI and assessed eligibility and access to federal resources as well as local food shelves. Food boxes were supplied for patients with immediate need for food. The Park Nicollet Institutional Review Board reviewed this study and determined it to be quality improvement (QI), and exempt from further oversight.

Results

When clinicians decided who they should screen for food insecurity during well exams, the screening rate was only 7.1%. This increased to 58.6% when clinicians were asked to screen by default and needed to delete the question from a standard note template to opt out. The actual number of identified patients in both cases was very low (only one patient identified in each case). Having staff initiate the screening process and collect results led to a much higher screening rate (95.2%; Table 2, Figure 2) and to a disclosure rate that was close to the reported prevalence for Hennepin County (12.2% vs 12%) and the United States (11.8%; Figure 3).

Conclusions

Clinician-initiated screening yielded a substantially lower disclosure rate than staff-initiated screening, suggesting that the former method is inferior at identifying patients who struggle with FI. A possible reason for this is that clinicians only screened for FI during well-exam visit types, significantly limiting screening opportunities. Our data also support the conclusion that the FI screening rate is higher when clinicians are prompted to screen by a templated note in an EMR from which they need to opt out (58.6% vs 7.1%; Table 2). This approach may effectively increase clinician screening rates but may not increase patient disclosure rates.

It is unclear why patients disclose FI less often to clinicians than to staff, but we suspect that social desirability bias may be present. Social desirability bias could also explain why only 58% of food insecure families participated in

one of the three federal programs alluded to in the introduction. While patients were not observed while completing the screen when staff initiated screening, for the clinician-initiated screening clinicians asked patients about FI directly during the first two methods. This direct questioning may have increased patients' reluctance to disclose. Clinician discomfort addressing a patient's socioeconomic status may lead to missed screening opportunities and may also drive patient reluctance to disclose FI.

The estimated prevalence of FI, based on the disclosure rate in our population (12.2%), is consistent with the estimated prevalence of FI in Hennepin County, Minnesota (12%), and in the United States (11.8%; Figure 2). One limitation of our study is the possibility of overestimates in disclosure rates. Since a card was filled out for each patient encounter, not for each unique patient, some patients with FI could have been counted twice. However, the number of duplicate reports is likely to be small, since each period of inquiry was about 1 month long, and a follow-up visit during that time period is less likely. Finally, this was a single-site study, and as such may not be generalizable to other settings.

We anticipate following our FI patient population to determine if interventions by our social work team reduced FI and to evaluate whether reduced FI leads to improved health. It is beyond the scope of this article to address the ongoing debate on screening for social determinants of health in the clinic, but we hope that this study is useful to others attempting to improve their FI screening process. Future study and coordination with community resources is essential for understanding how best to help some of our most vulnerable patients.[10]

Tables and Figures

Figure 1: USDA-Validated Two-Question Food Insecurity Screen

Food insecurity, or lack of food, can mean skipping meals to make food last longer. It can also mean having to choose between buying food or paying your bills. We can help if you and your family are dealing with this.

1. Within the past 12 months, have you ever worried that your food would run out before you got money to buy more?
   Yes ☐ No ☐
2. Within the past 12 months, did the food that you bought just didn't last and you didn't have enough money to get more?
   Yes ☐ No ☐

Table 1: Description of the Three Screening Methods

Method	Type	When Conducted	Description
1	Clinician initiated: opt in	June 2015	Clinicians were encouraged to opt in by completing the questionnaire during well exams. They could choose to paste a standardized template into their note to serve as both script and documentation of the FI screen.
2	Clinician initiated: opt out	November 2015	The FI questionnaire was embedded into the well exam template for clinicians to complete during well exams. Clinicians had the option to delete the questionnaire from the template.
3	Staff initiated	June 2017, November 2017, June 2018	A card containing the questionnaire was offered to all patients at check in. Cards were collected during rooming by nursing staff. An identification sticker was placed on the card so patients could be contacted or seen that same day by a social worker. All cards offered were counted as screening opportunities; those that were marked were further counted as completed screens.

Figure 2: Screening Rates (Screens Collected vs Opportunities to Screen) for Different Screening Methods

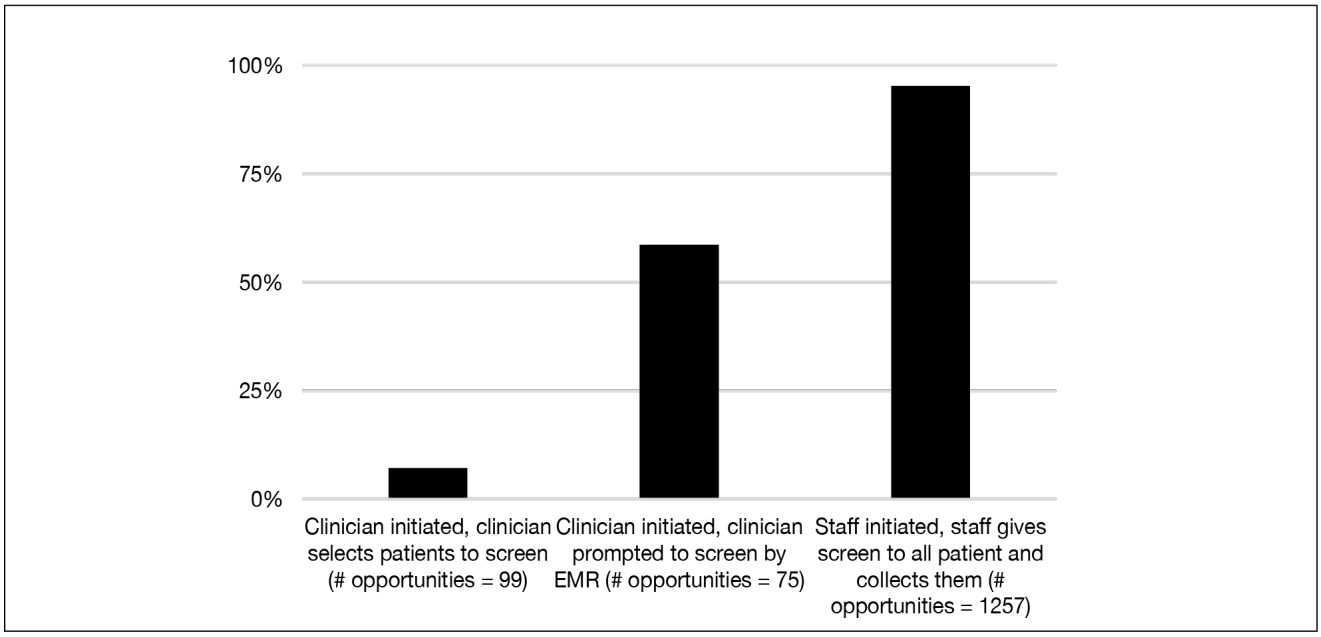

Figure 3: Food Insecurity Disclosure Rates

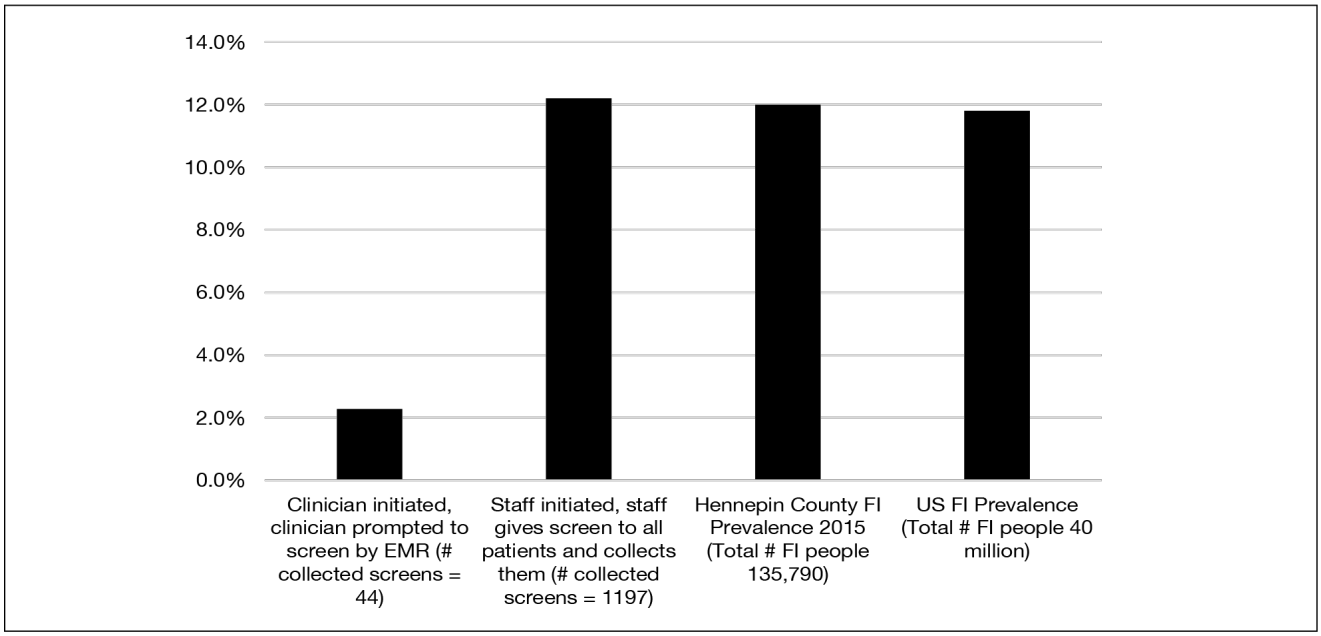

Table 2: Results From the Three Screening Methods

Phase	Type	Opportunities to Screen (Opp)	Completed Screens (Com)	Positive Screens (Pos)	Screening Rate (Com/ Opp %)	Disclosure Rate (Pos/Com%)
1	Clinician initiated: opt in	99 (only well exams)	7	1	7.1	n/a (sample size too small)
2	Clinician initiated: opt out	75 (only well exams)	44	1	58.6	2.3
3	Staff initiated	1,257 (all visits)	1,197	146	95.2	12.2

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Presentations: This study was presented at the following conferences:

- AAFP FMX Conference, September 2016, Orlando, FL
- MAFP Research and Innovation Forum, April 2017, Bloomington, MN
- AAFP National Conference for Residents and Medical Students, July 2017, Kansas City, MO (Winning poster)
- AAFP FMX Conference, September 2017, San Antonio, TX
- STFM Annual Spring Conference, May 2018, Washington, DC
- MMCGME Annual Resident & Fellow Quality Forum, May 2018, University of Minnesota, Minneapolis, MN (Winning Poster)
- MMA Annual Conference, September 2018, St Paul, MN (Winning poster)
- STFM Conference on Practice Improvement, December 2018, Tampa, FL (H. Winter Griffith Scholarship winner)

Corresponding Author

Oluwaseun O. Acquah, MD

University of Minnesota Methodist Hospital Family Medicine Residency Program, 6600 Excelsior Blvd, Suite 160, St Louis Park, MN 55426. 952-993-7711. Fax: 952-993-6798.

oluwaseun.acquah@parknicollet.com

Author Affiliations

Oluwaseun O. Acquah, MD - University of Minnesota Methodist Hospital Family Medicine Residency Program, St Louis Park, MN

Amanda M. Honsvall Hoefler, MD - University of Minnesota Methodist Hospital Family Medicine Residency Program, St Louis Park, MN

Isaac Zoller, MD - University of Minnesota Methodist Hospital Family Medicine Residency Program, St Louis Park, MN

Lynn P. Manning, MD - University of Minnesota Methodist Hospital Family Medicine Residency Program, St Louis Park, MN

Donald J. Pine, MD - University of Minnesota Methodist Hospital Family Medicine Residency Program, St Louis Park, MN

Richard F. Mitchell, MD, MS - University of Minnesota Methodist Hospital Family Medicine Residency, St Louis Park, MN

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