BRIEF REPORT

Content Analysis of Transportation Screening Questions in Social Risk Assessment Tools: Are We Capturing Transportation Insecurity?

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Purpose: **To analyze transportation screening and assessment questions used in social risk screening tools to understand how these tools assess patients' mobility and transportation needs.**

Methods: **We conducted content analysis of transportation screening and assessment tools used in adult health care delivery settings.**

Results: **We identified 23 unique social risk screening tools; 14 included at least 1 transportation question. Transportation screeners differed in terms of content domain, structure, and response options. Existing transportation screening and assessment tools do not uniformly or comprehensively assess transportation needs. Questions typically fail to surface relevant information on financial constraints, disability, local transportation options, and social isolation that should influence related interventions.**

Conclusions: **Development of a brief screening question that broadly captures transportation insecurity followed by a more comprehensive assessment triggered by positive response could enable policy makers and health systems to better identify individuals facing transportation insecurity and to develop transportation solutions that address patients' transportation needs. (J Am Board Fam Med 2022;35:400–405.)**

Keywords: **Health Services Accessibility, Transportation of Patients, Screening Tool, Social Determinants of Health**

Introduction

Approximately 5.8 million Americans miss or delay medical care annually because of a lack of transportation.[1] Access to transportation shapes individuals' ability to get timely medical care and is essential for providing and receiving health care. It is therefore not surprising that health care systems are increasingly investing in nonemergency medical transportation (NEMT) services to provide transportation services to patients. In 2012, the health sector spent an estimated $1.3 billion on NEMT, largely through Medicaid programs.[2] Medicaid has funded NEMT benefits since 1966, and a growing number of Medicare Advantage plans also offer transportation benefits.[3]

Despite the growing interest in and funding of transportation services, intervention studies have documented overall low uptake and effectiveness of NEMT.[4–7] Knowing that transportation shapes patients' access to care, how can we make progress on transportation solutions?

One potential reason NEMT services have not demonstrated robust results is that they may not be targeting the correct population.[8] To answer this question, we turned upstream to evaluate transportation screening tools. Previous studies have documented that transportation is one of the most common social risks included in social screening tools used in health care settings. Awareness of social needs through screening is an important first step to integrate social care into health care delivery settings.[9,10] Our aim in evaluating transportation screening questions was to understand how transportation screeners are identifying transpo-

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rtation insecure individuals and how screening questions' content may influence transportation assessment and solutions. By analyzing the transportation questions used in social screening tools we hoped to better understand how these screening tools may capture—and may sometimes miss—the root of patients' mobility and transportation needs.

Methods

We conducted qualitative content analysis of transportation screening questions. Content analysis is a method frequently used in health research that systematically organizes the language used in texts to better understand and contextualize data.[11,12] It organizes data into categories for the purposes of comparison, and specifically allows researchers to explore meaning and context within documents. We selected content analysis to evaluate the language used in transportation screening questions and how this language may carry particular assumptions that shape the population identified as transportation insecure and the transportation interventions offered.

We employed 3 main phases in content analysis: preparation, organizing, and reporting. We used 2 sources to identify common transportation screening and assessment questions used in health care delivery settings. First, we extracted transportation-specific items included in a published systematic review of social risk screening tools.[13] Second, we searched for transportation questions included in the fifteen adult social risk screening tools compiled and shared through the UCSF Social Interventions Research and Evaluation Network (SIREN), a national resource for health care-based social care research.[14] To our knowledge, these are the 2 most comprehensive databases of social risk screening tools being used in the United States. Large electronic medical record vendors use these same health care screening tools in their SDH modules (Epic uses Accountable Health Communities and Cerner uses PRAPARE and WellRx).

We used a deductive approach to organize the analysis as there are known areas important in screening questions. We examining 3 main areas in each tool: content domains (transportation related topics included in screening question/s), structure of screening tool (single question vs multiple questions), and possible response options (binary, scaled, open response). Because of the limited size of the questions we examined, each transportation screening question was our unit of analysis and reporting structure.

Results

Across the 2 data sources, we identified 23 unique screening and assessment tools (see Figure 1). Of these screening tools, 14 included at least 1 transportation question (see Table 1).

Content Domains

Five of the 14 tools ask about physical transportation broadly but do not connect transportation needs specifically to medical access.[15–19] The other 9 assess whether transportation barriers (such as a lack of transportation, unreliable transportation, or trouble getting transportation) limit the respondent's ability to access medical care.[20–28] Six of these 9 collapse the question about the impact of transportation barriers to include both medical care access and nonmedical activities.[20,21,25–28]

The look-back periods are inconsistent across tools. Five tools inquire about transportation barriers experienced over the past year[20,21,24,25,28]; 1 tool assesses incidence of transportation barriers over the previous 3 months.[27] Eight do not indicate a specific time frame for assessment.[15–19,22,23,26]

The majority (13/14) of transportation screening and assessment tools focus exclusively on the physical aspect of transportation (car ownership, physically arriving to a clinic or traveling to do routine activities). [15,17–28] Three tools ask specifically about cost as a key barrier to transportation.[18,19,27] One

Figure 1. Extraction of Transportation Screening Tools

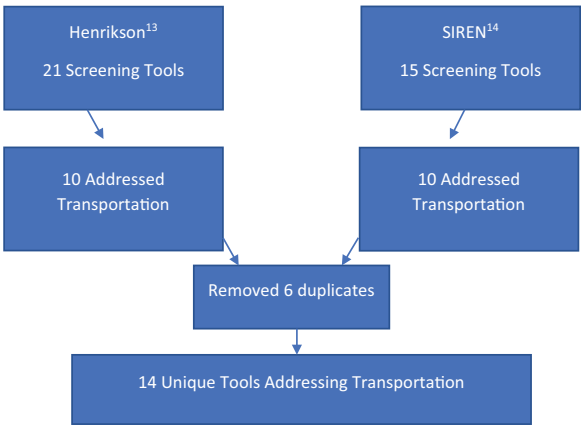

Table 1. Transportation Screeners

Screener	Question	Response	Domain
AAFP Social Needs Screening Tool[20]	In the past 12 months, has lack of transportation kept you from medical appointments, meetings, work or from getting things needed for daily living?	• Yes, it has kept me from medical appointments or getting medications • Yes, it has kept me from non-medical meetings, appointments, work, or getting things that I need • No	Medical Pharmacy Daily living
Accountable Health Communities Health Related Social Needs Screening Tool[21]	In the past 12 months, has lack of reliable transportation kept you from medical appointments, meetings, work or from getting things needed for daily living?	• Yes/no	Medical Daily living
Arlington Screening Tool[19]	Do you have trouble finding or paying for a ride (or any form of transportation)?	• Yes/no	Non-medical
Boston Medical Center-Thrive Screening Tool[22]	a. Do you have trouble getting transportation to medical appointments b. Would you like help connecting to resources?	a. Yes/no b. [transportation to medical appointments as one option]	Medical
HealthBegins -Upstream Risk Screening Tool[23]	How often is it difficult to get transportation to or from your medical or follow-up appointments?	• Does not apply • Never • Sometimes • Often • Always	Medical
Health Leads Social Needs Screening Toolkit[24]	In the past 12 months, have you ever had to go without health care because you didn't have a way to get there?	• Yes/no	Medical
North Carolina Medicaid Screening Tool[25]	Within the past 12 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living?	• Yes/No	Medical Daily living
PRAPARE[26]	Has lack of transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?	• Yes, it has kept me from medical appointments • Yes, it has kept me from non-medical meetings, appointments, work, or from getting things that I need • No • I choose not to answer this question	Medical Daily living
WellRx Toolkit[18]	Do you have trouble finding or paying for a ride?	• Yes/No	Non-medical Cost
Kaiser Permanente's Your Current Life Situation Survey[27]	a. In the past 3 months, did you have trouble paying for any of the following? (Select all that apply, transportation being an option) b. Has lack of transportation kept you from medical appointments or from doing things needed for daily living? c. Which of the following would you like to receive help with at this time? (select ALL that apply) d. How hard is it to get your medications and medical supplies when you need them?	a. Select all that apply (transportation being an option) b. Available responses: • Kept me from medical appointments or from getting medications • Kept me from doing things needed for daily living • Not a problem for me c. Transportation as one of options d. Not at all hard, somewhat hard, very hard	Medical Pharmacy Daily living Cost
HelpSteps[28]	In the past 12 months, has lack of transportation kept you from medical appointments, meetings, work or from getting things needed for daily living	• Yes/No	Medical Daily living

Continued

Table 1. Continued

Screener	Question	Response	Domain
Partners in Health Survey Instrument[15]	Owns a car Easy or hard to get around	• Yes/no • Very easy-very hard	Non-medical Car ownership Experience of transportation
Urban Life Stressors Survey[16]	Transportation as a cause of stress	• Likert scale 1 to 5 with 1 indicating no stress and 5 extreme stress	Non-medical Experience of transportation
Social Needs Checklist[17]	Any difficulties with or problems with [transportation as one of domains]	• Likert scale 1 (not at all), 2 (some), 3 (a great deal)	Non-medical Experience of transportation

tool assesses the emotional impact of transportation for respondents (specifically inquiring about transportation as a stressor).[17]

Tool Structure

The majority (12/14) of transportation screeners involve only a single item. [16–26,28] Two tools includes multiple questions about transportation.[15,27] The Kaiser Permanente tool asks respondents about the financial burden of transportation as well as about whether transportation barriers affect a) access to medical care; b) access to picking up medications; and c) activities of daily living.[27] This tool, as well as the Boston Medical Center's Thrive Screening tool, both enable respondents to request assistance with transportation.[22,27]

Response Options

Nine of the screening and assessment tools permit only binary responses (yes/no).[18–22,24–26,28] Four enable scaled responses that permit respondents to grade their transportation barriers.[16,17,23,27] One tool included both binary responses and an option to indicate very easy/very hard to capture the respondent's transportation needs.[15] One tool allows respondents to indicate the level of stress (using a Likert scale) transportation plays in their lives.[16] Two tools ask respondents specifically about whether transportation limits access to medical care and their ability to obtain medications, but the response options do not enable individuals to differentiate whether transportation barriers limit their access to medical care, pharmacy, or both.[20,27]

Discussion

Screening, assessing, and intervening on transportation depends both on accurately identifying individuals with transportation needs and facilitating effective interventions. From our review of common transportation screening tools used in health care-based social risk assessments, it is clear there is not yet a single standard measure for either screening or for comprehensively assessing transportation needs and resources. Our analysis highlights that the question content, response options, and tool structure all could be redesigned to better inform patient-centered transportation interventions.

Individuals live and navigate a complex social world, and their transportation needs are often more nuanced than lack of rides.[7] Yet the majority of existing screening tools fail to surface information relevant to selecting interventions (eg, financial constraints, disability, local transportation landscape, caregiving responsibilities) that could enable interventions responsive to different types of transportation challenges. For example, patient mobility for transfers has important implications for interventions: someone unable to transfer out of a vehicle or climb stairs may benefit from telehealth or home visits rather than transportation services or may need a specific kind of vehicle for transport. Since existing transportation screening tools focus on the material availability of rides, health care's transportation interventions are almost exclusively ride-based solutions. Indicative of this mismatch between patients' actual needs and transportation interventions, previous research has documented that even patients reporting material transportation barriers are nonetheless unlikely to use rides when they are provided.[6] Screening and assessment tools that capture the diverse reasons for transportation

insecurity will enable policy makers and health systems to build transportation solutions that meet patients' needs.

A universal and comprehensive assessment for transportation needs, however, is unlikely to be feasible in busy clinical settings. This should prompt a reevaluation of the structure of existing screening and assessment tools. An alternative structure could include a brief screening question that broadly captures transportation insecurity followed by a more comprehensive assessment triggered by positive responses. This would be similar to the Patient Health Questionnaire–2 or Mini-Cog screening, each of which involves brief screening questions that capture a broad population, and if positive, lead to more in-depth evaluation.[29,30]

The structure and content of transportation screening and assessment tools shape the populations identified and the solutions that are subsequently offered. The disconnect between interest in transportation and poor uptake of current transportation programs presents an opportunity to improve transportation needs assessments and transportation solutions. It is time to develop a suite of more robust tools to address health care accessibility. Valid, feasible screening and assessment tools that accurately identify specific transportation needs will improve the range and effectiveness of transportation solutions and better serve patients' mobility needs.

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