A Conceptual Framework for Addressing Social Needs Through the Accountable Health Communities Model

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ABSTRACT

Objectives: To present a conceptual framework to address social needs through accountable health programs in the United States. We present our implementation of the Accountable Health Communities (AHC) Model as an example.

Study Design: Conceptual framework and case study.

Methods: Our conceptual framework of the AHC Model is adapted from the UK Rainbow Model of Integrated Care for the US health care context based on current literature. Our approach is further underpinned by Medical Research Council guidance on intervention development stages, recent framework development in intervention coproduction, and quality improvement methods.

Results: Our team used the adapted framework coupled with Medical Resource Council stages for intervention development to create a program scope and sequence. Standard operating procedures and an implementation plan were created and approved by the Center for Medicare and Medicaid Innovation. Implementation was successfully launched at 13 clinical delivery sites and completed screenings of more than 10,000 patients have been done to date.

Conclusions: Our conceptual framework, which we are applying as a bridge organization in the AHC Model, can serve as a model that organizations can use to successfully design interventions to address social needs in clinical care settings in the United States. Further application and testing of the framework are warranted to advance understanding of social needs interventions in the United States.

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Recognition of the driving role of social determinants in health outcomes, coupled with the untenable cost curve of US health care, has led to calls for action in the health care system. Major professional groups[1-5] have challenged health systems to assess and address social determinants of health (SDOH) in a variety of ways. This has led to a plethora of activity across the US health system, including recent efforts to delineate between upstream SDOH interventions and midstream social needs interventions.[6-9] Recent efforts driven through health system reform have focused primarily on social needs. These are individual-level factors, such as housing instability, that can be assessed and addressed within a specific patient interaction (visit) or as part of a patient panel, as opposed to a broader whole-population or community effort to address upstream SDOH.[8] Although interventions addressing social needs are new in the United States, the United Kingdom has been engaged in similar social prescribing innovations for several years and offers the opportunity to inform practice development in the US context.

Although there is no standard definition, the concept focuses on expanding the role of health care (typically primary care) to include factors outside medicine such as social needs.[10-12] Programs implemented to date generally have included 3 components: (1) referral from a health care professional related to an identified social need, (2) consultation with a link worker, such as a community health worker or patient navigator, to set goals and action plans, and (3) use of local community organizations and programs to address identified needs.[12-15] These align with programs to address social needs that are gaining traction in the United States. The CMS Accountable Health Communities (AHC) Model is one social needs intervention that is currently undergoing testing and has similarities to social prescribing programs in the United Kingdom. The AHC Model focuses on screening beneficiaries in 5 domains: housing instability, difficulty paying utility

bills, food insecurity, transportation, and interpersonal violence. Screening is coupled with referral to community resources and patient navigation (typically through a link worker).[16] A bridge organization serves as the "hub" to coordinate activities.

The AHC Model is designed to be flexible and allows bridge organizations to use theories, conceptual frameworks, and strategies best suited to their clinical delivery system and community needs.[16] The literature published to date on accountable health–type programs and social needs screening in the United States has discussed some factors that influence implementation, such as readiness for change, organizational factors, culture or climate, capacity, and use of implementation strategies (eg, facilitation). However, a number of gaps remain in the evidence base, including a lack of specification on how authors have designed specific social needs interventions and chosen implementation strategies and whether theory or frameworks were used in these processes.[17] In other words, the AHC Model and social needs intervention movement nationally are very much an opportunity for learning. The current state of the field is further complicated by the lack of integrated health services research and dissemination and by the lack of implementation sciences frameworks to guide the development of interventions that require both intra- and interorganizational change.[18] Our objective with this paper is to propose a conceptual framework for social prescribing tailored to the US context and to share our application of the framework as a bridge organization participating in the CMS AHC Model.

Conceptual Framework

The overarching goals of social needs interventions align with the Triple Aim and include improved connections of patients to community services, reduced health care utilization, reduced health care costs, and improved health outcomes. We hypothesize that adoption and implementation of social needs interventions in health care systems is similar to adoption of any innovation and is influenced by characteristics ranging from the individual to environmental. Using the 2016 version of the Rainbow Model of Integrated Care (RMIC) conceptual framework,[19-21] we present a conceptual framework. The RMIC was originally developed by Valentin et al in 2013 to combine integrated care and primary care, with particular attention to the multicomponent, complex nature of integrating social and health care interventions, including social prescribing.[19] The model was expanded in 2016 to include the Triple Aim outcomes of cost and utilization, population health, and care experience.[21] Related studies have conducted international expert consensus panels to determine a taxonomy of constructs for the framework.[20] The framework is premised on population and patient-focused care, which includes personal preferences, values, and medical, psychological, and social needs of individuals, and on service delivery concerns that are inclusive of health, economic, social, and environmental needs and promote health equity and well-being.[19]

Macro-level integration includes alignment of interorganizational frameworks and policy decisions that aid the delivery of integrated care to populations.[19-21] Determinants of system integration that apply to social prescribing interventions include resources, engagement of stakeholders, and the political, economic, and social climate in which integration is taking place.[20]

Meso-level integration includes organizational and professional integration. Determinants of organizational integration can include culture, language, backgrounds, bureaucratic structures, professional roles and responsibilities, organizational visions, and regulations among social and health organizations.[22,23] Professional integration focuses on inter- and intraorganizational relationships.[19] Determinants for professional integration can include trust; shared understanding of roles, responsibilities, ethics, and common language; and respect and communication.[22,24,25]

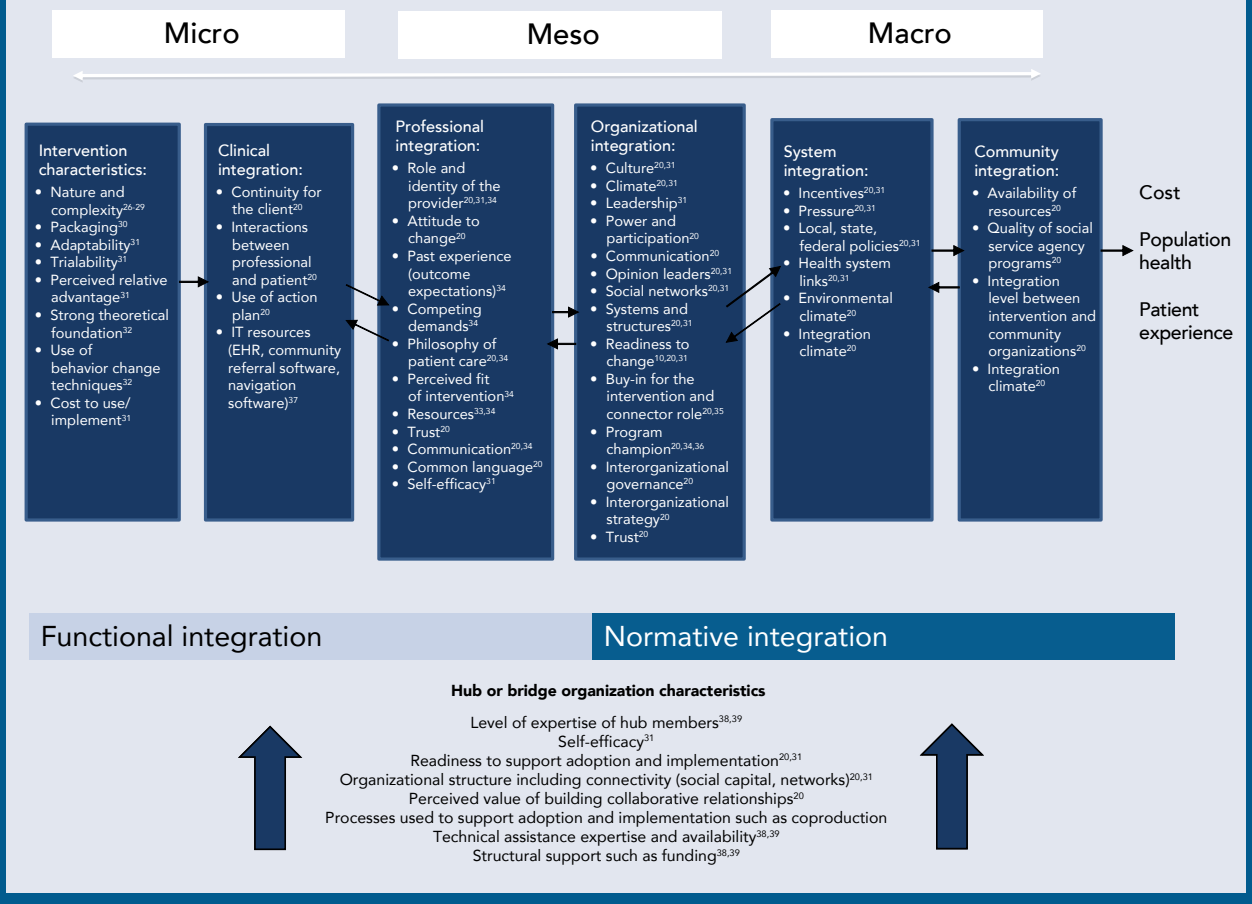
Micro-level integration includes clinical integration. This refers to the extent to which services are effectively coordinated.[19] Determinants of clinical integration can include continuity of care, quality of interaction between the professional and patient, use of care plans, and resources such as personnel and competing demands.

The framework further delineates functional and normative integration as key to success. Functional integration is the coordination of key support functions and activities—for example, financial and information management, strategic planning, human resources, communication, support systems, regular feedback, and quality improvement.[19,21] Normative integration refers to the development and maintenance of a common frame of reference among organizations, professional groups, and individuals.[19] Key determinants of normative integration are trust, visionary leadership, conflict management, and perceived need and purpose to collaborate.[20] Normative integration is important to facilitate integration at all levels and to achieve a sustainable intervention aimed toward achieving the Triple Aim outcomes.[19-21] Previous research has found that normative integration is a critical enabler to the implementation of integrated care.[19-21]

Proposed Adapted Conceptual Framework for Social Needs (Social Prescribing) Interventions in the United States

We propose the addition of 3 categories to the RMIC model as shown in **Figure 1**[20,26-39]: intervention characteristics, hub organization characteristics, and community integration; these would increase alignment with the US health care and social services delivery systems and current implementations of social needs programs. We also suggest several determinants to be

Figure 1. Adapted RMIC Framework for Social Needs Interventions in the United States[20,26-39]



EHR, electronic health record; IT, information technology; RMIC, Rainbow Model of Integrated Care.

considered and specified by authors under each integration level of the RMIC as they relate to social needs intervention implementation as shown in **Figure 1**.[20,26-39] References for selection of factors in each category are noted in that figure.[20,26-39]

Case Study: Applying the Social Needs Conceptual Framework and Medical Research Council Guidance to Designing Our AHC Model

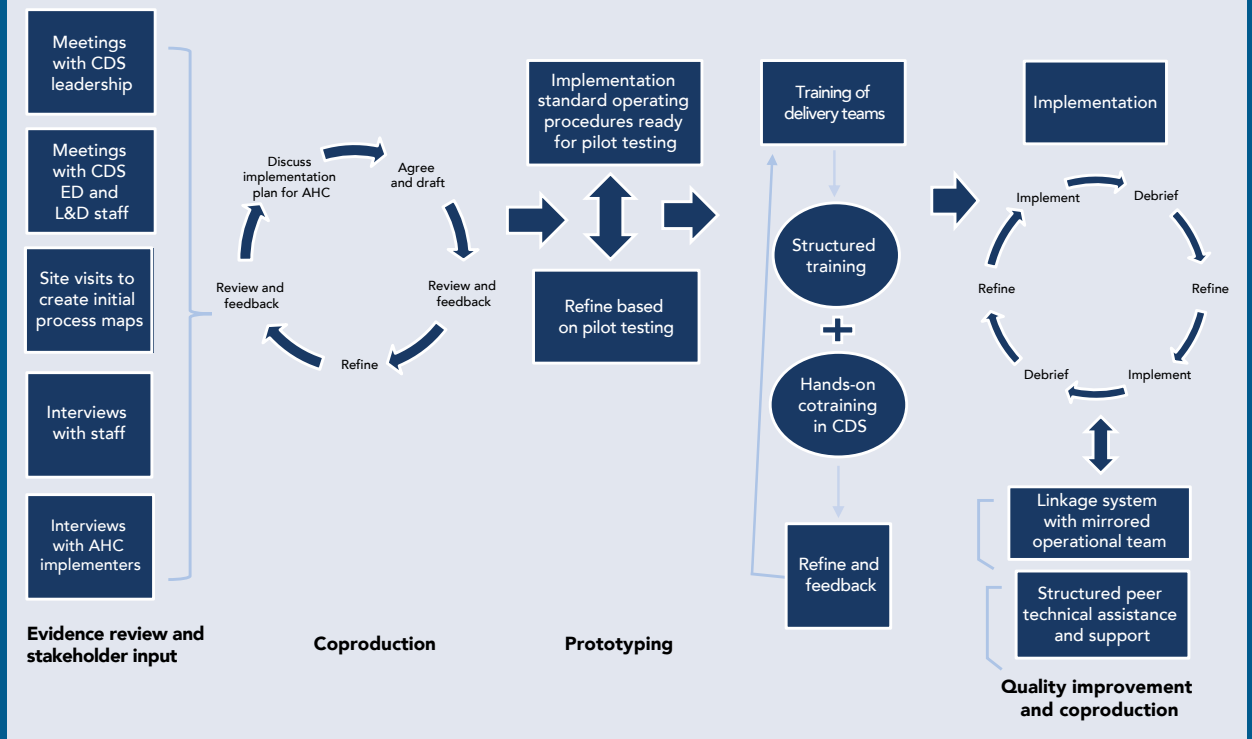
The **eAppendix Figure**[20,26-39] (available at **ajmc.com**) identifies the selected factors from the framework that we are targeting in our implementation (shown in white). Our research team chose factors that we believed to be modifiable, and we identified those which were not readily modifiable but could moderate the impact of our implementation, as shown in red in the eAppendix Figure. We selected the constructs for planning our implementation based on literature review and previous research.[40,41]

Our implementation plan for the AHC Model was further developed using the Medical Research Council (MRC) guidance on intervention development and quality improvement methods, as shown in **Figure 2**.[42,43] We operationalized our framework using the MRC process stages on intervention development: (1) evidence review and stakeholder consultation, (2) coproduction, and (3) prototyping. We used quality improvement cycles to help us improve readiness to implement and also to address trialability and adaptability of the intervention in each clinical delivery setting at the preimplementation phase. Following prototyping, we created a final intervention scope and sequence (**Table**).

Stage 1: Evidence Review and Stakeholder Consultation

As shown in the Table, we began with a series of meetings with all levels of the clinical delivery site (CDS) and implementers

Figure 2. Application of MRC Steps and Quality Improvement Cycles for AHC Development



AHC, Accountable Health Communities; CDS, clinical delivery site; ED, emergency department; L&D, labor and delivery; MRC, Medical Research Council.

to promote normative integration by garnering buy-in, support, and a sense of shared purpose and vision for the AHC Model in our community. We focused on functional integration by understanding the CDS' current workflows and any potential constraints we needed to solve as a leadership team for successful AHC Model implementation. We conducted site visits and developed process maps of patient flows and workflows for intervention development as a team. At the intervention level, we discussed the trialability and relative advantage of implementing the AHC Model with executive leadership through frontline staff in a series of meetings to discuss how the program would be operationalized. We identified opinion leaders and a program champion at each CDS. A series of meetings were held with information technology leadership and staff to inform them about the AHC Model and to create and prioritize data transfer protocols among organizations. Meetings were held with link workers to discuss patient interactions with a focus on social needs, present the AHC Model, discuss intervention strategies for patient navigation, and garner their input and buy-in for using a theory-based navigation script. At the management level, we focused on both normative and functional integration through meetings held with CDS leadership to ensure executive-level engagement and support and to assign roles and responsibilities for program staff. The input of CDS leadership was sought on the approach to navigation, alignment with broader organizational goals, and brainstorming potential barriers and facilitators to implementation.

Stage 2: Coproduction

We then moved to development of standard operating procedures (SOPs). Coproduction was used to create the project SOPs. The bridge organization first created draft SOPs based on our in-person meetings and process maps using the prespecified Center for Medicare and Medicaid Innovation (CMMI) format. These were presented to our clinical delivery partners in an in-person meeting in which the collective team reviewed the content and edited the documents in real time. The resulting SOP draft was then emailed to CDS leadership and staff for final edits and approval.

Table. AHC Model Development Scope and Sequence

Stage	Agent	Determinants from conceptual framework	Theoretical change methods	Practical applications
Evidence review and stakeholder consultation *Series of meetings to establish program*	CDS leadership	• Perceived relative advantage • Packaging • Buy-in for the AHC Model and connector role • Opinion leaders • Trust • Communication • Leadership • Program champion • Incentives • Cost • Federal (CMS) policies	• Cue to participate • Communication • Mobilization • Organizational consultation/ planning	• Invite CDS leadership to participate • Present prepackaged program presentation including benefits of participating • Define key model terms • Site visit planning meeting where AHC Model team visits each unit and receives tour • Discuss opinion leaders and potential program champions • Process mapping of each clinical delivery unit and current workflow of each staff member
Evidence review and stakeholder consultation *Creation of data transfer and security protocols*	IT leadership and staff	• IT resources • Self-efficacy • Continuity for client • Use of action plan • Relative advantage • Common language • Power and participation • Health system links	• Information • Organizational consultation/ planning • Capacity building • Planning response	• Engage multiple IT teams • Identify and prioritize different data transfer methods • Develop contingency plans for data transfer in the event of system disruption • Disseminate protocols • Identify knowledge owners
Evidence review and stakeholder consultation *Meetings to discuss patient barriers, facilitators, needs, current strategies*	Link workers (community health workers, navigators, nurses)	• Strong theoretical foundation • Use of behavior change techniques • Packaging • Role and identity of the provider • Attitude to change • Resources • Communication • Philosophy of patient care • Perceived fit of intervention • Adaptability • Trialability	• Information • Modeling • Facilitation • Discussion • Demonstration • Scenario-based information	• Present theoretical underpinnings with documented results and link to current intervention activities • Demonstrate intervention activities and techniques • Elicit input on tailoring intervention design to integrate into current staff workflows • Discuss company culture, staff roles, and available resources to adapt intervention • Provide site-specific examples of ways the intervention could be implemented
Evidence review and stakeholder consultation *Planning meetings to discuss CDS leadership engagement, staff involvement*	Program champion: executive partner	• Outcome expectations • Self-efficacy • Packaging • Relative advantage • Opinion leaders • Social networks • Communication • Readiness to change • Buy-in for the AHC Model and connector role • Interorganizational governance • Interorganizational strategy	• Information • Modeling • Demonstration • Skills training • Facilitation • Discussion • Goal setting • Persuasion	• Present intervention goals including the theoretical underpinnings with documented results • Demonstrate key intervention activities with explanations for their presence and effectiveness • Elicit input on tailoring intervention design to integrate into current staff workflows and company objectives • Discuss the presented intervention's placement in the landscape of similar activities being implemented and the resources being employed • Identify company goals for the areas addressed by the intervention • Identify facilitators and barriers to implementation
Coproduction *Creation of SOPs*	Leadership and staff	• Self-efficacy • Packaging • Communication • Coproduction • Interorganizational governance • Interorganizational strategy	• Chunking • Information • Modeling • Discussion • Cues to action	• Provide draft SOPs provided for review prior to meeting • Review purpose of SOPs and CMS requirements • Gather and address feedback regarding intervention SOPs and staff involvement at all steps • Email final SOPs for review and organizational approval • Submit final SOPs to CMS for approval

AHC, Accountable Health Communities; CDS, clinical delivery site; IT, information technology; SOP, standard operating procedure.

Stage 3: Prototyping

The SOPs were prototyped and tested in each CDS prior to development of our AHC Model training protocols. Bridge organization leadership and the AHC Model program manager met CDS managers and staff on each unit to pilot-test our procedures. We visited a minimum of 4 patients in each unit to complete screening, referral, and navigation processes using the SOPs. After each patient, the team debriefed about the process and identified any steps that needed additional review or changes. Once final processes were agreed upon, staff were provided formal training for AHC Model implementation. Training was done on multiple levels: first in a structured didactic environment and then with hands-on training conducted in each CDS. Hands-on training consisted of embedding the academic team in the CDS and having the members work alongside the staff (screening, referring, navigating) until they expressed readiness to start program components. Structured debriefings took place during the hands-on training. Once staff began implementation, we moved to quality improvement and assurance. A linkage system with mirrored operational teams housed at the academic site was set up to provide ongoing technical support and assistance and to continue to foster the conditions for successful implementation through expert facilitation. Monthly meetings were scheduled with CDS leadership and staff to support implementation. Meeting agendas were cocreated by the CDS and bridge organization.

RESULTS

Stage 1: Evidence Review and Stakeholder Consultation

Our approach to AHC Model evidence review and stakeholder consultation resulted in the creation of process maps detailing current patient encounters in each CDS. Based on our meetings, all 13 CDSs expressed readiness to implement the AHC Model. All sites continue to successfully implement the model. To support implementation and based on our meetings, the bridge organization embedded behavior change and theory into our navigation protocols. We scripted these for staff using the transtheoretical model of change.[40,41] Clinical integration focused on creating secure data transmission protocols using HL7 messages or flat files from each CDS to our secure CMS Certified Data Center. Our software was created to allow staff across all locations to log in and complete all 3 processes (screening, referral, and navigation) in a seamless fashion. We used funds from the cooperative agreement to support packaging the intervention through the creation of a software platform and development of training protocols for implementation. At the professional level, we discussed each CDS' philosophy of delivering care so we could tailor scripts for their patients and staff based on this. For example, one CDS focuses on wellness as a core tenet. We embedded the use of the term throughout our introductory scripting and in the text provided to patients in the community referral summary. We used standard language for staff across the CDSs when discussing the AHC Model and provided definitions for key model terms.

Stage 2: Coproduction

Coproduced SOPs were successfully created for all 13 CDSs. Our process of creating SOPs crossed functional and normative integration levels by incorporating operational factors and focusing on collaborative creation of an implementation approach. As we moved toward implementation, we evaluated, adapted, or created any necessary data systems and data transmission protocols using human-centered design approaches to ensure fit with the individual implementers and to support overall program uptake, coordination, and maintenance.

Stage 3: Prototyping

The prototyping step allowed our team to identify missing components needed for successful implementation. For example, we discovered that even clinical staff needed a scripted introduction to use when introducing the AHC Model screening tool to patients. During the prototyping step, we were able to try different scripts and develop tailored language for each CDS. We also identified that use of laptops was impractical in the clinical delivery environment and switched to tablets in rolling kiosks to improve ease of use. By switching to rolling kiosks, we were able to streamline the AHC Model workflow for staff members during the screening. The kiosks housed the screening tablet as well as a printer to instantly distribute program material. The kiosk also housed hospital-grade cleaning wipes. Staff members no longer needed to return to patients' rooms after retrieving documents from a stationary workstation printer as would have occurred with the use of laptops. The kiosks also allowed for an additional level of privacy for participants completing the screening with the addition of a 4-way privacy screen. With the privacy screen in place, only the participant completing the screening tool could see the questions and responses, so clinical staff could confidently let patients self-complete the screening questions. Functional integration, including identification of where to store kiosks and supplies, was done in the prototyping step, as this practical need was not raised by any stakeholders in previous interactions. Thirty-two staff members successfully completed training and expressed readiness to implement. Following training, staff achieved an average 57.1% survey completion rate.

Final Scope and Sequence for AHC Model Implementation

As shown in the Table, our team created the final scope and sequence for developing our AHC Model implementation.

CONCLUSIONS

The adapted RMIC conceptual framework was successfully applied across 13 CDSs including emergency departments (EDs), labor and delivery departments, and ambulatory clinics. Previous studies have shown the importance of stakeholder involvement in program design.[42] We found that the MRC stages were easy to apply and fit well with our pragmatic orientation to intervention development. Extending the MRC stages to include implementation through the use of quality improvement cycles and ongoing technical assistance and support for CDSs has been helpful to support implementation of the model. To date, our collaborative team has successfully completed screening on more than 10,000 patients across these locations, and 43% of patients screened were found to be high risk (positive for a need and had been in the ED 2 or more times in the past 12 months) (n = 4300). The needs reported with the highest frequency by all patients were food insecurity (40%), housing instability (30%), and transportation (28%). The primary outcome measures of focus for the AHC Model currently are health care utilization (ED) and health care costs, both of which will be evaluated post model by CMMI and the contracted evaluation organizations using patient claims data (beyond 2022). We are unable to provide details on the evaluation plan for the AHC Model given that our role as a bridge organization is focused on our implementation. That said, our perspective as a bridge organization is that navigation and the creation of new navigation cases represent the hypothesized mechanism through which these outcomes will be changed, and related data may serve as useful indicators for the model's implementation. Each bridge organization is expected to create new navigation cases for 2048 patients annually. To date, our team has achieved approximately 95% of the goal across all sites. Navigation cases created do vary by site, with ambulatory sites having fewer high-risk patients and generating fewer navigation cases than ED locations. The data system created for this project allows for the generation of reports showing the number of navigation cases created by each site at custom time periods, which allows us to monitor and adjust staffing at regular intervals. Of patients deemed eligible to receive navigation, 96% agreed to receive the service (opt in) and 92% were successfully contacted by our navigators to create a patient action plan and for ongoing follow-up. The team held weekly staff and monthly leadership meetings to discuss model metrics (specifically navigation) and barriers and facilitators of implementation related to model constructs that could affect success, including self-efficacy, communication, outcome expectations, and competing demands. During staff training, we created curricula to focus on building self-efficacy and communication skills along with targeting perceptions of intervention constructs (eg, adaptability, complexity, trialability). Training also focuses on constructs at the integration levels including buy-in, communication, readiness for change, and organizational support. To date, 92% of staff reported feeling confident to implement the model following training.

Implementation using this model was not a quick process. As with any endeavor aiming to build integration among organizations, finding time to consistently come together to collaborate was a challenge. To ensure participation, meetings had to be scheduled far enough in advance to accommodate busy schedules. Navigating the mandatory policy and procedures of multiple bureaucratic organizations delayed the speed at which decisions were ratified. The differences in the types of organizations also led to different and sometimes competing outcome expectations, goals, and priorities. We addressed the issues of navigating organizational polices, outcome expectations, goals, and priorities through transparency and the sharing of information using community-based participatory research principles. We adapted project tools to meet organizations' concerns and changing needs wherever possible, treating our approach as quality improvement in all facets. These accommodations directly affected the perception of our partners' packaging, adaptability, and trialability of the intervention. We scheduled regular check-ins with staff members to continually build their self-efficacy. We devised advanced organizers and reports to provide managers with additional support while tracking their staff's activities. These organizers reminded managers of critical implementation functions that needed to be routinely monitored, and the reports offered an avenue for progress to be checked. We also reframed retraining sessions as opportunities to address the fit of the current SOPs. Lastly, personnel turnover is a challenge, as buy-in, trust, and the transfer of knowledge were necessary for successful implementation. Packaging of trainings (eg, videos, online) could serve as a tool to reduce training burden for future organizations. Future studies implementing and testing the model constructs proposed herein would further the field of social needs interventions in the United States. Application of the MRC framework in the United States also warrants further application and testing.

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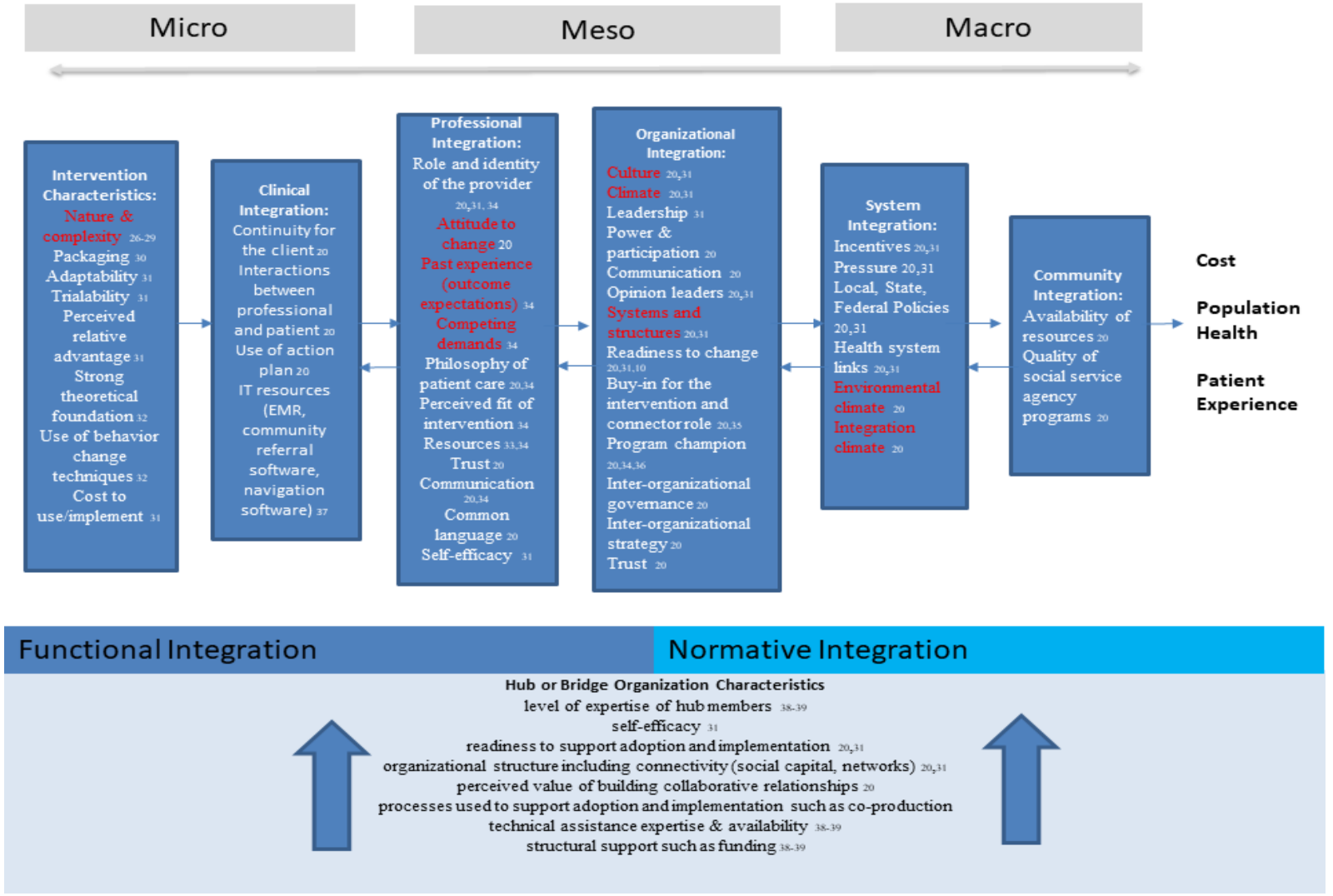
eAppendix Figure. Bridge Organization AHC Model Implementation Conceptual Framework[20,26-39]



AHC, Accountable Health Communities; EHR, electronic health record; IT, information technology.