UCLA
UCLA Previously Published Works

Title

Mechanisms for Community Health Worker Action on Patient-, Institutional-, and Community-Level Barriers to Primary Care in a Safety-Net Setting

Permalink

Journal

ISSN

Authors

Carson, Savanna L
Hong, Clemens
Behforouz, Heidi
et al.

Publication Date

2022

DOI

Peer reviewed

Mechanisms for Community Health Worker action on patient-, institutional-, and community-level barriers to primary care in a safety-net setting

Savanna L. Carson, PhD[1,*], Clemens Hong, MD, MPH[2], Heidi Behforouz, MD[2], Emily Chang, MD[1], Lydia Z. Dixon, PhD[3], Diane Factor[4], Sheba M. George, PhD[5], Jenebah Lewis, MSW, LCSW[6], Angelina Majeno, MPH[7], Maria Morales[1], Courtney Porter[1,4], Ami Shah, MPH[2], Stefanie Vassar, MS[1,8], Arleen F. Brown, MD, PhD[1,8]

[1]Division of General Internal Medicine & Health Services Research, Department of Medicine, University of California Los Angeles, 1100 Glendon Ave, Suite 1820, Los Angeles, CA, 90095

[2]Los Angeles County, Department of Health Services, 241 N. Figueroa Street Los Angeles, CA 90012

[3]Health Science Program, California State University, Channel Islands, 1 University Dr, Camarillo, CA 93012

[4]Worker Education & Resource Center, Inc, 1545 Wilshire Blvd #500, Los Angeles, CA 90017

[5]Department of Urban Public Health, Charles R Drew University of Medicine and Science, College of Science and Health, 1731 E 120th St, Los Angeles, CA 90059

[6]USC Suzanne Dworak-Peck School of Social Work, 669 W 34th St, Los Angeles, CA 90089

[7]Department of Psychological Science, University of California Irvine, 510 E Peltason Dr. Irvine, California 92697

[8]Olive View-UCLA Medical Center, 14445 Olive View Dr, Sylmar, CA 91342

Abstract

Medically and socially complex patients disproportionately face barriers to primary care, contributing to health inequities and higher healthcare costs. This study elicited perspectives on how CHW's act upon barriers to primary care in five patient (n=25) and three CHW focus groups (n=17). Participants described how CHWs acted on patient-level barriers through social support, empowerment, and linkages, and system-level barriers by enhancing care team awareness of patient circumstances, optimizing communication, and advocating for equitable treatment. Limitations existed for influencing entrenched community-level barriers. CHWs, focusing on patient preferences, motivators, and circumstances, intervened on multilevel barriers to primary care, including advocacy for equitable treatment. These mechanisms have implications for existing CHW conceptual models.

*Corresponding author: Savanna Carson, Division of General Internal Medicine & Health Services Research, University of California Los Angeles, 1100 Glendon Ave, Suite 1820, Los Angeles, CA, 90095. scarson@mednet.ucla.edu Office – 310-267-5511, Cell – 805-320-2806.

Keywords

Community Health Workers; Safety-Net; Primary care engagement; Health disparities; Access to care

---

Introduction:

Medically and socially complex patients, who have a high disease burden, multiple comorbidities, and high levels of social need, often face multiple barriers to effective engagement in primary care (Freed et al., 2013; Hudon et al., 2016), contributing to poor health outcomes (Shi et al., 2002; Shi et al., 2003; Starfield, 2012). Strategies for reducing barriers to primary care engagement include improving access to linguistically- and culturally-concordant providers, expanding shared-decision making, and addressing social determinants of health (Davis et al., 2005; Hua et al., 2018; Mitchell et al., 2019). Community Health Workers (CHWs) help reduce these barriers as they serve as brokers between the patient and health or social service systems and work to deliver needed support and information to those they serve while building trust in populations disproportionally affected by health inequities (please see 2009–1 APHA policy statement for the nationally recognized CHW definition (APHA, 2009; Sabo et al., 2017)). Facilitating care through CHWs is one way to address patients' social needs, such as basic needs (Maslow & Lewis, 1987) or behavioral health care, in low-income, under-resourced, and culturally diverse settings where providers have insufficient time to address complex health issues and social barriers to health (Jaiswal & Halkitis, 2019). Many federal agencies have long-supported advocacy and funding for the CHW workforce (Goodwin & Tobler, 2008; HRSA, 2007; IHS, 2021; Nelson, 2002; Urrea, 2009), including the Affordable Care Act which increased the visibility of CHW implementation in medical care by including provisions to promote a community health workforce, providing additional opportunities to address complex coexisting clinical and social needs for medically underserved communities (Bibbins-Domingo, 2019; Islam et al., 2015).

CHW interventions have been found to reduce costs, improve high-value care preventing emergency department (ED) visits, and increase primary care utilization (Basu et al., 2017; Kangovi et al., 2020; Moffett et al., 2018). The clinical mechanisms, or functions and processes of how CHWs work within healthcare, remain poorly characterized; however, evidence suggests CHW provision of patient-centered culturally competent care improves disease management (Ingram et al., 2017; Kangovi et al., 2018; Matiz et al., 2014) and system navigation while addressing social needs (Kangovi et al., 2016; Kangovi et al., 2018; Reinschmidt et al., 2017). Although conceptual frameworks for CHW mechanisms exist, these studies have primarily focused on community-based settings (Katigbak et al., 2015; Taylor et al., 2019) and generally concentrated on patient, CHW, or other community-based service provider perspectives. Limited evidence exists comparing both patient and CHW perspectives on ways CHWs influence barriers to primary care engagement, particularly for low-SES, racially and ethnically diverse, medically and socially complex patients (Balcazar 2018; George et al., 2020; Glenton et al., 2011; Jack et al., 2017; Palmer-Wackerly et al., 2019). To address these gaps, this study aimed to explore patient and CHW perspectives

on the impact of a safety-net primary care team augmented by a CHW and how the CHW potentially influenced patient-, system-, and community-level barriers to care.

Setting

The Care Connections Program (CCP) was a randomized controlled trial comparing usual primary care with primary care supported by a CHW. From February 2015 to October 2017, the program embedded 25 CHWs in patient-centered medical homes (PCMHs) at eight clinics within the Los Angeles County Department of Health Services (LAC DHS). These were the first CHWs employed in these clinics and within LAC DHS. The LAC Ambulatory Care Network and Health Services Administration Institutional Review Board approved the study. We report our findings using the Standards for Reporting Qualitative Research (O'Brien et al., 2014).

CHWs were hired based upon familiarity with the patient population, including the socio-cultural norms and community resources of South and East Los Angeles, and previous "lived experience" inclusive of personal adversity. Each CHW had no prior work experience as a CHW but may have had related experience in community service. CHWs received intensive two-week immersion training (64 hours), including orientation to chronic disease management, behavioral coaching, complex care management, motivational interviewing, social determinants of health, health care delivery, and system navigation. A non-profit working with LAC DHS with expertise in workforce development, provided the immersion training based on the CHW core competencies (Rosenthal et al., 2021; Rosenthal et al., 1998). Following implementation, continuing CHW education was provided monthly (at least 2 hours per month) and 1:1 coaching by supervisory social workers (2–3 hours per month).

The CCP intervention arm incorporated CHW core roles (Rosenthal et al., 2021) and components of earlier CHW interventions for high-utilizer patients (Hartzler et al., 2018; Reinschmidt et al., 2017), including social support, navigation, accompaniment, home visits, care planning, coaching, medication review, care transitions support, and linkages to social services and behavioral/psychosocial services. CHWs were embedded in PCMHs, allowing for a multi-disciplinary approach to patient care, including working with nurses, providers, pharmacists, and social workers. Each full-time CHW had an average caseload of 20 patients.

CCP eligible patients had a history of high acute care usage or uncontrolled condition(s). Program participation included patients with either (a) two acute care utilization equivalents or (b) one acute care utilization equivalent within one year with a history of a high-risk condition, including congestive heart failure, stroke, chronic obstructive pulmonary disease, asthma, diabetes mellitus with hemoglobin A1c>9, Acquired Immune Deficiency Syndrome, age>80 years, co-occurring mental illness, and substance use disorder. An acute care utilization equivalent was defined as one preventable hospitalization admission or two emergency department (ED) visits, four urgent care visits, or one ED visit and two urgent care visits within the past year. Potentially avoidable utilization was defined as acute care visits (hospitalizations or ED visits) that might not have been required had these conditions

been managed successfully by primary care providers in outpatient settings (AHRQ, 2020; Fingar et al., 2016; Gao et al., 2014). While each participant could be enrolled in CCP for up to one year, intervention intensity was based on ongoing patient assessment by the CHW and the care team.

Methods

Focus groups were conducted separately with both CHWs and patients in the CCP intervention arm to allow dynamic group engagement. The question guide was developed based on CHW observations, CHW discussions, and a literature review. We asked semi-structured questions about barriers faced in healthcare on the system-, community-, patient-level, and the impact of the CHW role on healthcare. Questions were framed to account for differences in roles. For instance, patients were asked, "What are some challenges you face getting health care, especially before you got a CHW?" while CHWs were asked, "What are key barriers your patients face to getting healthcare, particularly those barriers not easily identified or understood by their primary care providers?"

Email and phone recruitment occurred through CHW-patient outreach or by CCP staff. Sessions were recorded, held in private locations, such as a clinic conference room, and lasted about two hours. Patient sessions were conducted in English (two) or Spanish (three), and CHW sessions were in English (three). Recordings were transcribed, and if applicable, translated to English, by a professional service. All participants received informed consent, received a $75 gift card, a meal, and a survey to obtain demographic characteristics.

Qualitative analyses were conducted using a critical realist (Fletcher, 2017) and reflexive six-phase thematic analysis approach (Braun & Clarke, 2006; Braun et al., 2019). One primary coder (SC) read the transcripts repeatedly, reviewed preliminary content notes, and then coded the data set, delineating common themes using Atlas.Ti. The coder used a data-driven and inductive coding process, focusing on semantic content loosely based on question domains and initial team reflections and then on latent descriptive coding through clustering, renaming, splitting, or deleting based upon similar meanings. Central themes were revised and defined based upon testing provisional themes to determine whether patterns were evident across the data set, including groundedness across focus groups and participants, and how well candidate themes were reflective of the data. The research team reviewed each iteration of the themes, codes, and definitions and made recommendations for revisions or clarification.

We organized our thematic results by patient-level (knowledge-based, psychosocial, logistical factors), system-level (sub-optimal care, treatment, or access), and community-level (structural and social determinants of health) barriers. These categories were informed both by the participant perceptions herein and upon previous research on barriers to care. Previous research has often described patient-level barriers including cost, insurance coverage, linguistic barriers, low literacy or numeracy, inadequate access to information, psychosocial trauma, stigma, or employment factors, including lack of time off impacting accessibility (Arpey et al., 2017; Bade et al., 2008; Kangovi et al., 2013; Kaufman et al., 2012; McCloud et al., 2016; Schmalzried & Fallon, 2012). Healthcare-level barriers have

included a lack of cultural congruency between patients and the care team (Joo & Liu, 2020; Kumar et al., 2019; Mobula et al., 2015; Singleton & Krause, 2009), limited patient autonomy (Friedberg et al., 2013; Loignon et al., 2015; O'Donnell et al., 2016), inadequate resources for linguistic barriers (Hornberger et al., 1997) and racism (Pugh et al., 2021). Community-level barriers reflect limited physical and mental healthcare resources, support for behavior change, or services to address social needs, such as transportation, housing, healthy foods, and other socioeconomic (SES) factors which limit resources for longitudinal health and wellbeing (Bade et al., 2008; Kushel et al., 2006; O'Donnell et al., 2016).

While barriers to primary care for marginalized groups have been well documented (Bade et al., 2008; Freed et al., 2013; Hornberger et al., 1997; O'Donnell et al., 2016), this study was in the context of CHW implementation, which may have influenced participants descriptions of barriers. Therefore, we present a brief overview of common barriers mentioned in all focus groups but primarily focus our results on how CHWs acted upon these barriers, described by both CHWs and patients. We do not draw concrete comparisons between CHWs and patients due to focus group dynamics (an inability to determine why topics may be brought up by one group but not others) and the different number of focus groups based upon recruitment pools [17 of 25 potential CHWs, 24 of 634 potential patients]). Instead, we portray how CHWs and patients may have differentially described CHW mechanisms through quotes or explanations.

RESULTS

We conducted three focus groups with CHWs (n=17), 5–6 CHW participants per group, and five focus groups with patients (n=24); two in English (n=12) and three in Spanish (n=12), with 4–6 patient participants per group. Of the 17 CHW participants, 35% were African American/Black, and 65% Hispanic/Latino, 94% were female, 59% spoke Spanish, 50% lived in the same neighborhood as patients served, and 88% grew up in a similar community to the respective clinic (Table 1).

Three of the 24 patients did not complete the demographic survey. Of the 21 remaining patients, 86% were over the age of 50, 52% were African American/Black, 43% were Hispanic/Latino, 57% were female, 43% primarily spoke Spanish, 67% had a monthly income less than $3,000, and 80% felt more independent in handling future healthcare because of CCP (Table 2).

Barriers to Primary Care

CHWs and patients reported barriers to patient-level (knowledge-based, psychosocial, logistical factors), system-level (sub-optimal care, treatment, or access), and community-level (structural and social determinants of health) barriers to engagement and primary care adherence (Table 3, **first column**).

Mechanisms for CHWs in Addressing Barriers in Primary Care

Patients and CHWs shared perspectives on how the CHW role acted upon patient-, system-, and community-level barriers (Table 3, **second column**). Participants described how CHWs acted on patient-level barriers through social support, empowerment, and

linkages, system-level barriers by enhancing care team awareness of patient circumstances, optimizing communication, and advocating for equitable treatment, and community-level barriers through facilitating linkage to social services and community resources.

Patient-level CHW mechanisms

Health education.: CHWs provided education for patients on diagnoses, treatment, navigation, care utility, or resources. Participants described how health education improved patient confidence and motivation for health management. A patient explains, "*[the CHW] checked all my records and explained everything to me nicely… Once we talked about my health problems, we got confident. That's how we started a friendship with the doctor.*" A CHW confirms, "*nobody's ever sat down and talked to them about what their medicine is. I have patients who have been stable since.*"

Empowerment and motivation.: CHWs provided social support and coaching to counteract patient discouragement and encourage health motivation by emphasizing a healthy lifestyle for quality of life, setting actionable goals, and empowering patients in care. Patients described themselves as exhausted or discouraged, when facing healthcare obstacles, before the CHW. A patient says, "*When you are sick, you don't feel like living, and when you chat with her, she encourages you, and she pulls you out from that world of darkness… they show interest in us, so that makes you move forward little by little.*" CHWs described empowering patients in clinical settings due to power dynamics or self-effacement. A CHW explains, "*You empower them to understand that they have a voice, and this whole process is centered around you, or supposed to be.*"

Building trust.: Once a relationship was established between the CHW and patient, CHWs worked to build a patient's trust in the medical system by addressing concerns, listening, providing consistent support, and ensuring patient consensus in care. CHWs often described patients' distrust of healthcare. A CHW explains, "*To actually win [patient] trust because they'll say, 'well, so-and-so said they were going to help me, but it never happened.' …when you come along, they're like, oh, why should I trust you.*" Patients voiced trust issues and fears due to specific episodes of miscommunication or mistreatment. A patient describes how their limited English proficiency affected trust, "*In the past, we didn't trust them because we didn't know how the doctor would react due to the way we talked, but now I feel more confident and trust my doctor… [the CHW] told me, "You don't have to feel embarrassed. Speak up. Ask questions. That's their job."*"

Skill-building to promote self-efficacy.: Patients were more likely than CHWs to describe how the CHW built capacity and patient self-efficacy through skill-building, including care tracking, medication adherence tools, and coordinating care. Skill-building included teaching patients how to write down care questions before visits and obtaining prescriptions between appointments. A patient describes, "*now, I write down the questions I want to ask my doctor, which I didn't do before… I have learned to be more organized. Now I take my medications… It's like a routine now.*" A CHW explains that patients have "*missed appointments…[because] they're not willing to follow through with a primary care provider. We have to teach them.*"

Linkage and assistance to resources to counteract risk factors for poor engagement.: Participants described CHW mediated linkage to services, including substance use treatment, mental health, or legal aid for poor engagement risk factors (substance use, mental illness, legal status, family circumstances). A patient explains how their CHW "*helped me with smoking and drinking and those kinds of things.*"

Institutional and system-level CHW mechanisms.—CHWs were seen as a mediator for healthcare system barriers; however, CHWs were more likely to describe system-level barriers, and potential CHW mechanisms for these barriers, than patients.

Timeliness and optimization of care coordination.: CHWs worked to optimize healthcare continuity, including ensuring timely care or prioritizing services, clarifying treatment next steps, increasing accountability in care coordination between patients and care provider teams or front desk staff, and explaining roles. A patient explains, "*when I'm with her, they see me immediately.*"

Increase provider knowledge of patient for care decisions (patient priorities, limitations, circumstances).: CHWs provided insights from their intimate knowledge of their patients, helping to build provider understanding of the patient's circumstances, priorities, access to resources, or limitations, to tailor care decisions for shared decision-making. A CHW explains:

> "'They're addicted to norco. That's all they're coming in for.' And it's like, 'Well, did you ask them why?'…When you start showing (the doctors), the patient's in a lot of pain, and you know why… You're opening their eyes. One of our doctors had said that we're like the arms for the community, and we're bringing them back."

Another CHW describes how their knowledge of the patient was critical to share with the provider to ensure medication reconciliation:

> "You have a patient who admits and knows I am diabetic… I know this can help me, but doctor, the side effects disrupt my life. I can't take Metformin that causes diarrhea, nausea, and vomiting if I'm working two jobs to keep a roof over my head so that I can eat. I can't take that medication early in the morning or late in the afternoon because I'm on public transportation, and I do security work, and if I'm a security guard, I can't spend half my time on the job in the bathroom."

Equitable care advocacy.: CHWs advocated for equitable care by navigating occurrences of actual or perceived mistreatment or use of stereotypes, mitigating or reducing the stigma of patient circumstances, and encouraging a non-discriminatory environment. Patients described differences in treatment with CHW-accompanied visits. A patient explains, "*That was always my complaint before [the CHW]. Because they would do things reluctantly, and they would answer according to what you looked like.*" CHWs often describe care team judgment due to a lack of understanding of patient circumstances, stereotypes, prior non-compliance, racism, or how some patients are seen as a "*cost to County.*" A CHW explains how increased knowledge of patient circumstances affects care decisions, "*the doctors sometimes make judgments… you can't tell them that they need a lifestyle change when*

you don't know what their lifestyle is." Another CHW explains how clinic staff or provider cultural congruency affects patient-centered care, "*I've got little racist remarks because we have many people who literally work in our clinic are not part of our community.*"

<u>Patient-centered care.:</u> CHWs provided patient-centered care by providing culturally congruent, socially sensitive (sensitive to social circumstances and complexities), linguistically- and literacy-appropriate communication (in-language or appropriate to reading or education level) to ensure patient inclusion in care decisions. Before having a CHW, a patient describes care ineffectiveness from language barriers, "*I used to leave the same way I entered the place because I didn't understand a word they said.*" Or a CHW mentions how patient-provider "*culture barriers are the biggest… it's a wasted visit where they're just not coming together.*"

<u>Increase access and time with patients for continuity of care.:</u> CHWs increased access and time with patients, supporting continuity by conducting home visits, appointment accompaniment, reminders of care updates to both the care team or patient, appointment or medication reminders, and targeted outreach. A patient explains, "*She has always reminded me of my appointments. I forget.*" A CHW says, "*The greatest advantage, to communicate with the patient, is that we have the opportunity to actually go into their homes and see how they live. See how they eat or what they're not eating or don't have access to, or the way things are.*"

Community-level CHW mechanisms

<u>Facilitating linkage to social services and community resources.:</u> CHWs provided linkage assistance to social services and community resources for sustainable well-being, including assistance in determining eligibility, enrollment, and facilitation of logistics to services (i.e., transportation). A CHW describes, "*They're having a problem getting transportation or things like… DPSS, Medi-Cal.*" A patient expresses a renewed appreciation for obtaining employment, "*She makes me feel more confident, and they tell you that there are other opportunities for me… you realize that there is a life outside.*" CHWs described limitations or temporary aspects of resource linkage, including difficulty obtaining housing benefits or patient inability to exercise due to neighborhood safety. A CHW explains, "*They've gone to the nutritionist, they've heard what you've said as a doctor, but their income is not going to provide a way for them to get the nourishing type of food that they're supposed to have.*"

Limitations to the CHW role

CHW limitations existed due to their non-clinical position or systematic obstacles between health, social service, mental health, and community resources. Patients described ways the CHW failed in meeting a patient's need, such as housing or the denial of public benefits. CHWs also described limited clinical abilities to refer care or route services. A CHW describes an inability to refer a patient to proper services, and the patient was later diagnosed with schizophrenia, "*We don't have the certification… but I do know that something is not right here. Because you've spent 15 minutes with them, I've had this patient for a whole year.*"

Discussion

This study reports patient and CHW perspectives on how the CHW acts upon patient-, health system-, and community-level barriers to primary care engagement in the safety net. Patients and CHWs differed somewhat in how they perceived some of these mechanisms. For instance, patients often focused on individual-level barriers and how CHW activities affected them personally, while CHWs typically voiced systematic, socioeconomic, and environmental barriers affecting care. Prior research shows how CHW's act upon on patient- and community-level barriers. CHW mechanisms for patient-level barriers have included self-management support, health education, navigational assistance, and action plans (Kangovi et al., 2016; Reinschmidt et al., 2017) and community-level barriers have included resource linkages such as public benefits or transportation (Islam et al., 2017; Reinschmidt et al., 2017).

This research also elucidates several strategies used by PCMH CHWs to address health system-level barriers. Other qualitative studies have also described how CHWs may optimize patient-provider communication (Findley et al., 2014; Islam et al., 2017; Reinschmidt et al., 2017); however, we found that CHWs may mitigate perceived patient discrimination by advocating for equal treatment. CHWs advocated for culturally sensitive care by leveraging and sharing their intimate understanding of patients' circumstances for shared decision-making. As socially disadvantaged, low-SES patients are at higher risk for low-quality care (Chirikos & Nestel, 1985), describe differential treatment due to their lower SES or insurance status (Arpey et al., 2017; Han et al., 2015; Weech-Maldonado et al., 2012), and describe a need for increased understanding between provider and patients (Piemeu et al., 2020), CHW PCMH interventions may be important for mitigating unequal treatment. In particular, specific racial/ethnic groups who may have limited access to providers who look like them, hold mistrust in healthcare (Benkert et al., 2009), or perceive system and provider racial biases (Greer et al., 2014), may benefit from healthcare integration, further promoting anti-racism (Cahn, 2020).

Our findings have the potential to expand two existing CHW conceptual frameworks. Taylor et al., 2017, describes social support as the primary mechanism for CHW action (Taylor et al., 2019). Katigbak et al., 2015 portrays a 'partners in health' model representing the main CHW mechanisms: communication, cultural congruence, social support, and promoting healthy behaviors (Katigbak et al., 2015). Both conceptual models primarily focus on CHWs in community roles, with little emphasis on roles within primary care or healthcare settings. PCMH CHWs potentially act on systematic barriers not previously described in these conceptual frameworks, additionally mentioned in prior work (Katigbak et al., 2015). Future research on CHW conceptual models, particularly in clinical settings, should consider CHW influences on system barriers to care and care team perspectives.

This research has some limitations. We could not assess the effectiveness of CHWs on specific barriers or other outcomes, including health outcomes, cost, equity, social service integration, or quality of care (Shi, 2012). As in prior research, we could not quantify the effect, dose-response, and CHW program outcomes (Edlind et al., 2018; Ingram et al., 2017). Understanding which barriers the CHW can feasibly address or reduce is important

for expectations for CHW implementation (Kangovi et al., 2016; Kangovi et al., 2015; Kwan et al., 2018). CHW timeline and caseload may factor into which barriers can be feasibly addressed, especially without proper linkage to long-term support systems (Kangovi & Asch, 2018; Kangovi et al., 2015). Finally, CHWs in this program were educated on medication reconciliation and chronic disease management, which may differ from other CHW roles, leading to additional function or patient engagement (Kangovi et al., 2016).

Conclusion

Both CHWs and their medically and socially complex clients emphasized how CHWs serve to augment primary care delivery and mitigate patient-, system-, and community-level barriers to care, including perceptions of discrimination within the health care system. By emphasizing a shared understanding of the patient's life experience, circumstances, preferences, and knowledge, CHWs enhance decision-making and the quality of care for patients in the safety net. Understanding how CHWs reduce barriers to primary care engagement is critical for improving acceptability, access, quality of care for vulnerable patients and optimizing the CHW role by addressing role limitations, particularly for entrenched community barriers. These insights will further drive health and public policy actions addressing the needs of vulnerable and marginalized patients facing inequities in primary care.

Acknowledgments:

References

AHRQ. (2020). Agency for Healthcare Research and Quality, Quality Indicators. Agency for Healthcare Research and Quality. Retrieved December 7, 2020 from https://www.qualityindicators.ahrq.gov/

Support for community health workers to increase health access and to reduce health inequities, (2009).

Arpey NC, Gaglioti AH, & Rosenbaum ME (2017, 7). How Socioeconomic Status Affects Patient Perceptions of Health Care: A Qualitative Study. J Prim Care Community Health, 8(3), 169–175. 10.1177/2150131917697439 [PubMed: 28606031]

Bade E, Evertsen J, Smiley S, & Banerjee I (2008, 12). Navigating the health care system: a view from the urban medically underserved. WMJ, 107(8), 374–379. https://www.ncbi.nlm.nih.gov/pubmed/19331007 [PubMed: 19331007]

Balcazar H (2018). Community health workers: bringing a new era of systems change to stimulate investments in health care for vulnerable US populations. American Journal of Public Health, 108(6), 720–721. [PubMed: 29741936]

Basu S, Jack HE, Arabadjis SD, & Phillips RS (2017, 2). Benchmarks for Reducing Emergency Department Visits and Hospitalizations Through Community Health Workers Integrated Into Primary Care: A Cost-Benefit Analysis. Med Care, 55(2), 140–147. 10.1097/MLR.0000000000000618 [PubMed: 27547954]

Benkert R, Hollie B, Nordstrom CK, Wickson B, & Bins-Emerick L (2009). Trust, mistrust, racial identity and patient satisfaction in urban African American primary care patients of nurse

practitioners. J Nurs Scholarsh, 41(2), 211–219. 10.1111/j.1547-5069.2009.01273.x [PubMed: 19538706]

Bibbins-Domingo K (2019, 9 25). Integrating Social Care Into the Delivery of Health Care. Jama, 322(18), 1763–1764. 10.1001/jama.2019.15603 [PubMed: 31553407]

Braun V, & Clarke V (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.

Braun V, Clarke V, Hayfield N, & Terry G (2019). Thematic Analysis. In Liamputtong P (Ed.), Handbook of Research Methods in Health Social Sciences (pp. 843–860). Springer Singapore. 10.1007/978-981-10-5251-4_103

Cahn PS (2020). How interprofessional collaborative practice can help dismantle systemic racism. Journal of Interprofessional Care, 34(4), 431–434. 10.1080/13561820.2020.1790224 [PubMed: 32666874]

Chirikos TN, & Nestel G (1985). Further Evidence on the Economic-Effects of Poor Health. Review of Economics and Statistics, 67(1), 61–69. 10.2307/1928435

Davis K, Schoenbaum SC, & Audet AM (2005, 10). A 2020 vision of patient-centered primary care. J Gen Intern Med, 20(10), 953–957. 10.1111/j.1525-1497.2005.0178.x [PubMed: 16191145]

Edlind M, Mitra N, Grande D, Barg FK, Carter T, Turr L, Glanz K, Long JA, & Kangovi S (2018). Why effective interventions do not work for all patients. Medical care, 56(8), 719–726. [PubMed: 29939912]

Findley S, Matos S, Hicks A, Chang J, & Reich D (2014, Jan-Mar). Community health worker integration into the health care team accomplishes the triple aim in a patient-centered medical home: a Bronx tale. J Ambul Care Manage, 37(1), 82–91. 10.1097/JAC.0000000000000011 [PubMed: 24309397]

Fingar KR, Barrett ML, Elixhauser A, Stocks C, & Steiner CA (2016). Trends in potentially preventable inpatient hospital admissions and emergency department visits: statistical brief# 195.

Fletcher AJ (2017). Applying critical realism in qualitative research: methodology meets method. International Journal of Social Research Methodology, 20(2), 181–194. 10.1080/13645579.2016.1144401

Freed CR, Hansberry ST, & Arrieta MI (2013). Structural and Hidden Barriers to a Local Primary Health Care Infrastructure: Autonomy, Decisions About Primary Health Care, and the Centrality and Significance of Power. Social Determinants, Health Disparities and Linkages to Health and Health Care, 31(1), 57–81. 10.1108/S0275-4959(2013)0000031006

Friedberg MW, Van Busum K, Wexler R, Bowen M, & Schneider EC (2013, 2). A demonstration of shared decision making in primary care highlights barriers to adoption and potential remedies. Health Aff (Millwood), 32(2), 268–275. 10.1377/hlthaff.2012.1084 [PubMed: 23381519]

Gao J, Moran E, Li Y-F, & Almenoff PL (2014). Predicting potentially avoidable hospitalizations. Medical care, 164–171. [PubMed: 24374413]

George S, Dixon LZ, Carrasco E, Romo O, Vides L, & Balcazar H (2020, Jan-Mar). Talk to PAPA: A Systematic Review of Patient/Participant (PAPA) Feedback on Interactions With Community Health Workers Using a Depth Analysis Approach. J Ambul Care Manage, 43(1), 55–70. 10.1097/JAC.0000000000000309 [PubMed: 31770186]

Glenton C, Lewin S, & Scheel IB (2011, 5 27). Still too little qualitative research to shed light on results from reviews of effectiveness trials: a case study of a Cochrane review on the use of lay health workers. Implement Sci, 6(1), 53. 10.1186/1748-5908-6-53 [PubMed: 21619645]

Goodwin K, & Tobler L (2008). Community health workers. communities, 1(2).

Greer TM, Brondolo E, & Brown P (2014, 1). Systemic racism moderates effects of provider racial biases on adherence to hypertension treatment for African Americans. Health Psychol, 33(1), 35–42. 10.1037/a0032777 [PubMed: 23730720]

Han X, Call KT, Pintor JK, Alarcon-Espinoza G, & Simon AB (2015, 7). Reports of insurance-based discrimination in health care and its association with access to care. Am J Public Health, 105 Suppl 3(S3), S517–525. 10.2105/AJPH.2015.302668 [PubMed: 25905821]

Hartzler AL, Tuzzio L, Hsu C, & Wagner EH (2018, 5). Roles and Functions of Community Health Workers in Primary Care. Ann Fam Med, 16(3), 240–245. 10.1370/afm.2208 [PubMed: 29760028]

Hornberger J, Itakura H, & Wilson SR (1997, Sep-Oct). Bridging language and cultural barriers between physicians and patients. Public Health Reports, 112(5), 410–417. [PubMed: 9323393]

HRSA. (2007). Community Healthworker National Workforce Study. https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/community-health-workforce.pdf

Hua CL, Bardo AR, & Brown JS (2018). Mistrust in physicians does not explain black-white disparities in primary care and emergency department utilization: the importance of socialization during the Jim Crow era. Journal of the National Medical Association, 110(6), 540–546. [PubMed: 30129502]

Hudon C, Sanche S, & Haggerty JL (2016, 6 14). Personal Characteristics and Experience of Primary Care Predicting Frequent Use of Emergency Department: A Prospective Cohort Study. PLoS ONE, 11(6), e0157489. 10.1371/journal.pone.0157489 [PubMed: 27299525]

IHS. (2021). Community Health Representative. Indian Health Services. Retrieved September 8, 2021 from http://www.ihs.gov/NonMedicalPrograms/chr/index.cfm

Ingram M, Doubleday K, Bell ML, Lohr A, Murrieta L, Velasco M, Blackburn J, Sabo S, Guernsey de Zapien J, & Carvajal SC (2017, 10). Community Health Worker Impact on Chronic Disease Outcomes Within Primary Care Examined Using Electronic Health Records. Am J Public Health, 107(10), 1668–1674. 10.2105/AJPH.2017.303934 [PubMed: 28817321]

Islam N, Nadkarni SK, Zahn D, Skillman M, Kwon SC, & Trinh-Shevrin C (2015, Jan-Feb). Integrating community health workers within Patient Protection and Affordable Care Act implementation. J Public Health Manag Pract, 21(1), 42–50. 10.1097/PHH.0000000000000084 [PubMed: 25414955]

Islam N, Shapiro E, Wyatt L, Riley L, Zanowiak J, Ursua R, & Trinh-Shevrin C (2017, 10). Evaluating community health workers' attributes, roles, and pathways of action in immigrant communities. Prev Med, 103, 1–7. 10.1016/j.ypmed.2017.07.020 [PubMed: 28735724]

Jack HE, Arabadjis SD, Sun L, Sullivan EE, & Phillips RS (2017, 3). Impact of Community Health Workers on Use of Healthcare Services in the United States: A Systematic Review. J Gen Intern Med, 32(3), 325–344. 10.1007/s11606-016-3922-9 [PubMed: 27921257]

Jaiswal J, & Halkitis PN (2019, Apr-Jun). Towards a More Inclusive and Dynamic Understanding of Medical Mistrust Informed by Science. Behav Med, 45(2), 79–85. 10.1080/08964289.2019.1619511 [PubMed: 31343962]

Joo JY, & Liu MF (2020, 9). Nurses' Barriers to Care of Ethnic Minorities: A Qualitative Systematic Review. West J Nurs Res, 42(9), 760–771. 10.1177/0193945919883395 [PubMed: 31650899]

Kangovi S, & Asch DA (2018). The Community Health Worker Boom. NEJM Catalyst, 4(4).

Kangovi S, Barg FK, Carter T, Long JA, Shannon R, & Grande D (2013, 7). Understanding why patients of low socioeconomic status prefer hospitals over ambulatory care. Health Aff (Millwood), 32(7), 1196–1203. 10.1377/hlthaff.2012.0825 [PubMed: 23836734]

Kangovi S, Carter T, Charles D, Smith RA, Glanz K, Long JA, & Grande D (2016, 12). Toward A Scalable, Patient-Centered Community Health Worker Model: Adapting the IMPaCT Intervention for Use in the Outpatient Setting. Popul Health Manag, 19(6), 380–388. 10.1089/pop.2015.0157 [PubMed: 27007164]

Kangovi S, Grande D, & Trinh-Shevrin C (2015, 6 11). From rhetoric to reality--community health workers in post-reform U.S. health care. N Engl J Med, 372(24), 2277–2279. 10.1056/NEJMp1502569 [PubMed: 26061832]

Kangovi S, Mitra N, Grande D, Long JA, & Asch DA (2020). Evidence-Based Community Health Worker Program Addresses Unmet Social Needs And Generates Positive Return On Investment: A return on investment analysis of a randomized controlled trial of a standardized community health worker program that addresses unmet social needs for disadvantaged individuals. Health Affairs, 39(2), 207–213. [PubMed: 32011942]

Kangovi S, Mitra N, Norton L, Harte R, Zhao X, Carter T, Grande D, & Long JA (2018, 12 1). Effect of Community Health Worker Support on Clinical Outcomes of Low-Income Patients Across Primary Care Facilities: A Randomized Clinical Trial. JAMA Intern Med, 178(12), 1635–1643. 10.1001/jamainternmed.2018.4630 [PubMed: 30422224]

Katigbak C, Van Devanter N, Islam N, & Trinh-Shevrin C (2015, 5). Partners in health: a conceptual framework for the role of community health workers in facilitating patients' adoption of

healthy behaviors. Am J Public Health, 105(5), 872–880. 10.2105/AJPH.2014.302411 [PubMed: 25790405]

Kaufman EA, McDonell MG, Cristofalo MA, & Ries RK (2012, 3). Exploring barriers to primary care for patients with severe mental illness: frontline patient and provider accounts. Issues Ment Health Nurs, 33(3), 172–180. 10.3109/01612840.2011.638415 [PubMed: 22364429]

Kumar R, Bhattacharya S, Sharma N, & Thiyagarajan A (2019, 1). Cultural competence in family practice and primary care setting. J Family Med Prim Care, 8(1), 1–4. 10.4103/jfmpc.jfmpc_393_18 [PubMed: 30911472]

Kushel MB, Gupta R, Gee L, & Haas JS (2006, 1). Housing instability and food insecurity as barriers to health care among low-income Americans. J Gen Intern Med, 21(1), 71–77. 10.1111/j.1525-1497.2005.00278.x [PubMed: 16423128]

Kwan BM, Rockwood A, Bandle B, Fernald D, Hamer MK, & Capp R (2018). Research Full Report: Community Health Workers: Addressing Client Objectives Among Frequent Emergency Department Users. Journal of public health management and practice, 24(2), 146. [PubMed: 28141671]

Loignon C, Hudon C, Goulet E, Boyer S, De Laat M, Fournier N, Grabovschi C, & Bush P (2015, 1 17). Perceived barriers to healthcare for persons living in poverty in Quebec, Canada: the EQUIhealThY project. Int J Equity Health, 14(1), 4. 10.1186/s12939-015-0135-5 [PubMed: 25596816]

Maslow A, & Lewis K (1987). Maslow's hierarchy of needs. Salenger Incorporated, 14(17), 987–990.

Matiz LA, Peretz PJ, Jacotin PG, Cruz C, Ramirez-Diaz E, & Nieto AR (2014). The impact of integrating community health workers into the patient-centered medical home. Journal of Primary Care & Community Health, 5(4), 271–274.

McCloud RF, Okechukwu CA, Sorensen G, & Viswanath K (2016, 11). Beyond access: barriers to internet health information seeking among the urban poor. J Am Med Inform Assoc, 23(6), 1053–1059. 10.1093/jamia/ocv204 [PubMed: 27206459]

Mitchell J, Williams EG, Perry R, & Lobo K (2019, Jul-Aug). "You Have to Be Part of the Process": A Qualitative Analysis of Older African American Men's Primary Care Communication and Participation. Am J Mens Health, 13(4), 1557988319861569. 10.1177/1557988319861569

Mobula LM, Okoye MT, Boulware LE, Carson KA, Marsteller JA, & Cooper LA (2015). Cultural competence and perceptions of community health workers' effectiveness for reducing health care disparities. Journal of Primary Care & Community Health, 6(1), 10–15.

Moffett ML, Kaufman A, & Bazemore A (2018, 2). Community Health Workers Bring Cost Savings to Patient-Centered Medical Homes. J Community Health, 43(1), 1–3. 10.1007/s10900-017-0403-y [PubMed: 28695425]

Nelson A (2002). Unequal treatment: confronting racial and ethnic disparities in health care. Journal of the National Medical Association, 94(8), 666. [PubMed: 12152921]

O'Brien BC, Harris IB, Beckman TJ, Reed DA, & Cook DA (2014, 9). Standards for reporting qualitative research: a synthesis of recommendations. Acad Med, 89(9), 1245–1251. 10.1097/ACM.0000000000000388 [PubMed: 24979285]

O'Donnell P, Tierney E, O'Carroll A, Nurse D, & MacFarlane A (2016, 12 3). Exploring levers and barriers to accessing primary care for marginalised groups and identifying their priorities for primary care provision: a participatory learning and action research study. Int J Equity Health, 15(1), 197. 10.1186/s12939-016-0487-5 [PubMed: 27912783]

Palmer-Wackerly AL, Chaidez V, Wayment C, Baker J, Adams A, & Wheeler LA (2019). Listening to the Voices of Community Health Workers: A Multilevel, Culture-Centered Approach to Overcoming Structural Barriers in US Latinx Communities. Qualitative health research, 1049732319855963.

Piemeu CSNB, Loignon C, Dionne É, Paré-Plante A-A, Haggerty J, & Breton M (2020). Expectations and Needs of Socially Disadvantaged Patients for Navigational Support of Primary Health Care Services. BMC health services research, In review. 10.21203/rs.3.rs-89231/v1

Pugh M, Perrin PB, Rybarczyk B, & Tan J (2021). Racism, mental health, healthcare provider trust, and medication adherence among black patients in safety-net primary care. Journal of clinical psychology in medical settings, 28(1), 181–190. [PubMed: 32008136]

Reinschmidt KM, Ingram M, Morales S, Sabo SJ, Blackburn J, Murrieta L, David C, & Carvajal SC (2017, Oct-Dec). Documenting Community Health Worker Roles in Primary Care: Contributions to Evidence-Based Integration Into Health Care Teams, 2015. J Ambul Care Manage, 40(4), 305–315. 10.1097/JAC.0000000000000178 [PubMed: 28350634]

Rosenthal EL, Fox DJ, St John JA, Allen CG, Menking P, Brownstein JN, Hirsch GR, Redondo-Martinez F, Holderby-Fox LR, & Ibarra JM (2021). The Community Health Worker Core Consensus (C3) Project Story: Confirming the Core Roles and Skills of Community Health Workers. In Promoting the Health of the Community (pp. 11–35). Springer.

Rosenthal EL, Wiggins N, Brownstein JN, & Johnson S (1998). Summary of the National Community Health Advisor Study. https://crh.arizona.edu/sites/default/files/pdf/publications/CAHsummaryALL.pdf

Sabo S, Allen CG, Sutkowi K, & Wennerstrom A (2017). Community health workers in the United States: challenges in identifying, surveying, and supporting the workforce. American Journal of Public Health, 107(12), 1964–1969. [PubMed: 29048953]

Schmalzried HD, & Fallon LF Jr. (2012). Reducing barriers associated with delivering health care services to migratory agricultural workers. Rural Remote Health, 12(3), 2088. https://www.ncbi.nlm.nih.gov/pubmed/22827833 [PubMed: 22827833]

Shi L (2012, 2012/12/31). The impact of primary care: a focused review. Scientifica (Cairo), 2012(2012). 10.6064/2012/432892

Shi L, Starfield B, Politzer R, & Regan J (2002, 6). Primary care, self-rated health, and reductions in social disparities in health. Health Serv Res, 37(3), 529–550. 10.1111/1475-6773.t01-1-00036 [PubMed: 12132594]

Shi LY, Macinko J, Starfield B, Wulu J, Regan J, & Politzer R (2003, Sep-Oct). The relationship between primary care, income inequality, and mortality in US states, 1980–1995. Journal of the American Board of Family Practice, 16(5), 412–422. 10.3122/jabfm.16.5.412

Singleton K, & Krause E (2009). Understanding cultural and linguistic barriers to health literacy. OJIN: The Online Journal of Issues in Nursing, 14(3), 4.

Starfield B (2012, 3). Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services. SESPAS report 2012. Gac Sanit, 26 Suppl 1, 20–26. 10.1016/j.gaceta.2011.10.009 [PubMed: 22265645]

Taylor B, Mathers J, & Parry J (2019). A conceptual framework for understanding the mechanism of action of community health workers services: the centrality of social support. Journal of Public Health, 41(1), 138–148. [PubMed: 29228321]

Urrea NM (2009). The Patient Navigator Outreach and Chronic Disease Prevention Act of 2005: A bipartisan approach to improving access to care and addressing health disparities. Population Health Matters (Formerly Health Policy Newsletter), 22(2), 8.

Weech-Maldonado R, Hall A, Bryant T, Jenkins KA, & Elliott MN (2012, 9). The Relationship Between Perceived Discrimination and Patient Experiences With Health Care. Medical care, 50(9), S62–S68. 10.1097/MLR.0b013e31825fb235 [PubMed: 22895233]

Table 1:

CHW Focus Group Participant Demographics

	N (%)
Age	
18 – 30	2 (13.3)
31 – 40	5 (33.3)
41 – 50	3 (20.0)
51 – 60	4 (26.7)
61 – 70	1 (6.7)
Race/Ethnicity	
African American/Black	6 (35.3)
Hispanic/Latino	11 (64.7)
Female	15 (93.8)
Spanish Speaker	10 (58.8)
Educational Level	
Some college	9 (52.9)
College graduate	5 (29.4)
Some post-graduate training	3 (17.6)
Prior Work Experience (multiple categories)	
Community Work	16 (94.1)
Education/Teaching	10 (58.8)
Social Work	8 (47.1)
Healthcare	7 (41.2)
Counseling	7 (41.2)
Time with Care Connections Program (months)	
< 24 months	6 (35.3)
24 months	11 (64.7)
Lives in the same neighborhood as patients served	8 (50.0)
I grew up in a similar community	15 (88.2)
Reason for pursuing CHW career (multiple categories):	
Help others	16 (94.1)
Learn new skills	12 (70.6)
Help with own community	12 (70.6)
Use prior training/education	10 (58.8)
Have a career in healthcare	9 (52.9)
Have a steady paycheck	4 (23.5)
Envisions working as a CHW in 5 years	6 (35.3)

Table 2:

Demographics of Patients (n = 21) [*]

	N (%)
Age	
31–40	1 (4.8)
41–50	2 (9.5)
51–60	5 (23.8)
61–70	9 (42.9)
71+	4 (19.1)
Female	12 (57.1)
Race/Ethnicity	
African American	11 (52.4)
Hispanic/Latino	9 (42.9)
Other	1 (4.8)
Primary Language	
English	14 (66.7)
Spanish	9 (42.9)
Marital Status	
Single	10 (47.6)
Married	4 (19.1)
Divorced	2 (9.5)
Widowed	4 (19.1)
Other	1 (4.8)
Education	
Some elementary school	5 (27.8)
Some high school	4 (22.2)
High school graduate	3 (16.7)
Some college	6 (33.3)
Living situation	
Alone	4 (19.1)
With significant other	2 (9.5)
With child/children	6 (28.6)
With relatives	6 (28.6)
With friends/roommates	2 (9.5)
Homeless	2 (9.5)
Employment status	
Employed	4 (20.0)
Homemaker	7 (35.0)
Retired	4 (20.0)

	N (%)
Unemployed	5 (25.0)
Monthly Income	
$0 – $500	9 (47.4)
$500 – $1000	5 (26.3)
$1000 – $3000	4 (21.1)
$3000 – $6000	1 (5.3)
Months working with CHW	
0–6 months	5 (23.8)
6–12 months	6 (28.6)
12–18 months	6 (28.6)
>18 months	4 (19.1)
CHW meeting location(s) (multiple responses):	
Doctor's office	15 (71.4)
Hospital/ER	6 (28.6)
Home	5 (23.8)
Other	1 (4.8)
Would recommend CCP to friend/family member	18 (90.0)
CCP helped with current health concerns and healthcare	15 (78.9)
Feel more independent in handling future healthcare because of CCP	16 (80.0)
Satisfaction with CCP [**]	
Relationship with CHW	19 (90.5)
CHW help with scheduling appointments	20 (95.2)
CHW help with communicating with healthcare personnel	19 (90.5)
CHW help with medication management	21 (100.0)
CHW help with non-medical issues	15 (83.3)

[*] n = 3 patients did not complete the pre-focus group survey

[**] Response of Very satisfied or satisfied

Table 3.

CHW Mechanisms on Barriers to Care in Primary Care from all CHW and Patient Focus Groups

Patient-level barriers	**Patient-level CHW mechanisms**
• Knowledge about local health care systems services • Knowledge about personal health (prevention, treatment, medication, healthy habits) • Motivation (attitudes, beliefs, religion, resilience, adherence, capacity) • Trust (trauma, fear, disclosure of information, stigma) • Efficacy (level of social support, ability to track or manage care) • Other risk factors for poor engagement (substance use, mental illness, legal status, family circumstances)	• Health education (on diagnosis, treatment, medication, system navigation, primary care utility, or clinical resources) • Empowerment and motivation (emphasizing a healthy lifestyle for quality of life, setting realistic goals, and encouraging involvement in care) • Building trust (breaking down stigma or concerns, listening, personal relationship/social support, ensuring patient consensus in care plans) • Skill-building to promote self-efficacy[†] (increasing self-management behaviors, tracking of care, medication adherence) • Linkage and assistance to resources to counteract risk factors for poor engagement (treatment for substance use or mental illness, legal aid)
Institutional and system-level barriers [*]	**Institutional and system-level CHW mechanisms** [*]
• Timeliness (wait time, ability to obtain an appointment, treatment delays) • Patient-centeredness (cultural, literacy, or language congruence; technology access; disability accessibility) • Provider connection (communication, knowledge of patient, rapport, personal characteristics, power dynamics in care decision-making) • Continuity (medical records, care transitions, empaneled PCP, consistent patient contact information for hard to reach patients, maintenance of health coverage/insurance) • Discrimination (racism, class, assumption, gatekeeping)	• Timeliness and optimization of care coordination (ensuring timely or prioritization of services, clarifying or validating treatment next steps, increasing accountability, explanation of roles in each visit) • Increase provider knowledge of patient for care decisions (patient priorities, limitations, circumstances, history, culture) • Equitable care advocacy (navigating occurrences of actual or perceived mistreatment or use of stereotypes, mitigating or reducing the stigma of patient circumstances, and encouraging a nondiscriminatory environment) • Patient-centered care (cultural congruence, socially sensitive, appropriate language and literacy-level, accessibility support, patient part of the care decision-making process) • Increase access and time with patient for care continuity (home visits, accompaniment, follow-up calls, care reminders, targeted personal outreach, reminders to care team or to the patient of recent activity)
Community-level barriers	**Community-level CHW mechanisms**
• Socioeconomic (basic needs, poverty, benefit eligibility, food/housing security, opportunities) • Transportation (accessibility, costs) • Community safety, services, and resources (availability, accessibility, quality)	• Facilitating linkage to social services and community resources (assistance in determining eligibility, assistance in enrollment, facilitation of logistics)

[†]Resulting theme described more often, or more in-depth by patient participants than CHW participants.

[*]Category and resulting themes described more often, or more in-depth by CHW participants than patient participants.