Interventions to Improve Motivation and Retention of Community Health Workers Delivering Integrated Community Case Management (iCCM): Stakeholder Perceptions and Priorities

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Abstract. Despite resurgence in the use of community health workers (CHWs) in the delivery of community case management of childhood illnesses, a paucity of evidence for effective strategies to address key constraints of worker motivation and retention endures. This work reports the results of semi-structured interviews with 15 international stakeholders, selected because of their experiences in CHW program implementation, to elicit their views on strategies that could increase CHW motivation and retention. Data were collected to identify potential interventions that could be tested through a randomized control trial. Suggested interventions were organized into thematic areas; cross-cutting approaches, recruitment, training, supervision, incentives, community involvement and ownership, information and data management, and mHealth. The priority interventions of stakeholders correspond to key areas of the work motivation and CHW literature. Combined, they potentially provide useful insight for programmers engaging in further enquiry into the most locally relevant, acceptable, and evidence-based interventions.

INTRODUCTION

It has been estimated that Millennium Development Goal (MDG) 4 of reducing under-five child mortality by two-thirds from base levels of 1990 may not be attained in sub-Saharan Africa until 2165[1] unless efforts are made to increase the coverage of key interventions. Integrated community case management (iCCM) of childhood illnesses could potentially prevent more than 60% of the annual deaths of under-five children due to malaria, pneumonia and diarrhoea in sub-Saharan Africa[2] and is being adopted in several countries. To counter human resources and skill shortages, bring health service delivery closer to the community, and in response to the recent World Health Organization (WHO) emphasis on health worker task shifting to lay personnel, many countries are using volunteer community health workers (CHWs) to deliver iCCM.[3–9]

CHWs were used by national health ministries as key agents in the delivery of primary health care after the 1978 Alma Ata Conference[1,5]; however, by the early 1990s enthusiasm for CHW programs had diminished in part caused by the challenge of sustainability linked to poor retention and motivation of workers.[5,7] Interest in CHWs has resurged in recent years; however, there remains a lack of available information related to CHW retention and motivation. Proven strategies are needed[10–12]; as despite a large volume of programmatic experience relating to CHW motivation, there has been little documentation.

This work reports the findings of interviews with stakeholders with a range of program and research experience in diverse settings. Interviews were designed to elicit stakeholder perceptions and priorities related to strategies for improving the retention and motivation of CHWs in low income settings. The data were collected as the first stage of a process of implementation design for the inSCALE project (innovations at scale for community access and lasting effects), which aims to test strategies to improve CHW motivation, retention, and

performance in Uganda and Mozambique using a randomized controlled trial design. The aim was to establish an overview of intervention ideas and approaches that program implementers and researchers felt had the potential for impact. The perceptions and priorities of stakeholders are presented in the Results section before being discussed in light of key directions from the work motivation and CHW literature.

MATERIALS

Data were collected using a semi-structured interview guide (Appendix 1: Web Annex) that covered: participants' experiences working with CHWs, including successful and challenging aspects of their work and recommendations for other CHW programs, perceptions of the most effective approaches for increasing motivation and retention levels, and any innovations and novel ideas they had or had heard of relating to motivation and retention. Participants were asked to provide an indication of priority for their recommendations based on potential for impact and to explain their rationale.

The interview guide contained probes based on previous work in the context of CHW motivation and retention including in the areas of training, supervision, incentives, community involvement and ownership, information and data management, and mHealth, which have been included as sections in the Results.[5,9–12]

METHODS

Semi-structured key informant interviews were conducted with 15 stakeholders selected because of their experience in the design, implementation, and evaluation of both small-scale and national level CHW programs in a range of low-income settings. Recruited stakeholders were academics and non-governmental organization (NGO) workers based in Europe, North and South America, Africa, and Central Asia. Further details relating to each stakeholder are provided in Table 1. Six participants were identified by the inSCALE project team and a further nine were identified through snowball sampling where each participant recommended people they considered influential in the CHW field. Ten participants

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TABLE 1
International stakeholder research participants: professional profiles

Role	Location and reference
Technical roles with international non-governmental organizations (NGOs) delivering health services	East Africa (participants 6,14,15) and Central Asia (participant 1)
Senior roles with international NGOs focused on delivering health services through CHWs in Africa, Asia, and South America	USA (8–11)
Senior roles with an NGO that facilitates knowledge sharing and collaborative action between NGOs in the context of public health for underserved populations	USA (2,4)
International consultant with extensive experience working with CHW programs in sub-Saharan Africa	USA (3)
University-based researchers with experience in the research and dissemination of data relating to the motivation and retention of CHWs and providing key support to the development of strategy and policy for bilateral organizations and governments	USA (5,12)
Recently graduated PhD student whose work focused on the retention of CHWs in Southern Africa	USA (7)
Advocate for a Central Asian community health program successfully using CHWs in the delivery of health services	USA (13)

were interviewed in person at an international conference focusing on community health,[13] one interview was conducted in person at the participant's workplace and four were conducted remotely over the internet.

Each stakeholder was assigned a number at random, which appears in the 'location and reference' column in Table 1 and alongside their priorities and perceptions in Tables 2–9. Ethical approval was given by the London School of Hygiene and Tropical Medicine (reference 5762) and signed informed consent was obtained for all in person interviews and emailed informed consent for interviews conducted over the internet.

Interviews were conducted by one trained researcher using a semi-structured guide and took between 60 and 90 minutes. Notes were taken during the interview and all interviews were audio recorded; after each interview expanded notes were written up in full.

The data were analyzed thematically for potential interventions and practices through multiple readings of the notes and listening to the audio recordings.[14,15] In line with a process of analytic induction that used an iterative approach to data analysis based on both predetermined categories and the data generated, sections relating to cross-cutting approaches and recruitment were added to the probes which generated the richest data to complete the thematic sections presented in the results.[14–16] Interventions that stakeholders considered most likely to be effective or of contemporary relevance are highlighted within these sections.

RESULTS

Cross-cutting approaches. A number of participants made suggestions related to the general approach to be taken when designing interventions aiming to increase motivation and retention. These are termed here *cross-cutting approaches*. Major themes to emerge were the need for tailoring interventions to context, adopting a multi-faceted approach, and paying adequate attention to CHW workload and expectations if interventions are to be effective. It was also suggested that promoting program success and having consistent branding could increase motivation and retention. Table 2 contains details of the specific rationale for each of the main themes of response.

Recruitment. The manner in which CHWs are recruited was recognized as a critical influence on their retention and motivation. A broad recommendation was that in order for the role to be filled productively over time strategies must focus on recruiting those who have the drive to both provide a service to their community and share their knowledge. Suggested approaches for achieving this were to encourage community involvement in selection and support for CHWs and address the need for succession planning through CHWs identifying and mentoring their successors. Although ensuring specific CHW capacities through the adoption of criteria-based recruitment was a suggested approach, the possibly negative impact on gender equity and retention was noted especially when adopting education-based criteria. Table 3

TABLE 2
Suggested cross-cutting approaches

Theme	Rationale
Interventions tailored to context	• Interventions based on formative research designed to understand CHW experiences and motivations and their variations across the population will improve acceptability, uptake, and the possibility of potential success (2,3,7,11,14).
Multifaceted intervention design	• Packages of interventions that address different facets of motivation at community, CHW, and implementer level are more likely to be successful (1,4). • Based on experience in central Asia a phased implementation approach will avoid loss of quality and increase effective community engagement (1).
CHW expectations and workload	• Programs need to understand CHW expectations and adequately meet or manage them to ensure trust is maintained and retention and motivation are likely (1,5,6,8–11,14). • Formal volunteer contracts established collaboratively (6), regular feedback, (5,7), and the management of workload (12) are important for worker satisfaction.
Communicating success of programs	• Highlighting programmatic success through evidence as early as possible to the Ministry of Health and key stakeholders is important for program sustainability (1,6,8,14). • Conveying the impression of a reliable and united program worthy of respect through consistent branding promotes volunteer understanding of the value of their role (1,5).

TABLE 3
Suggested strategies related to recruitment

Theme	Rationale
Community selection and support of CHWs	• Participatory community selection increases community acceptability and demand for CHW services and encourages community support for CHWs. In doing so it contributes to the sustainability of programs and CHW motivation and retention. It also increases the likelihood of selecting those both motivated to work and representative of the community (1,2,8,13).
CHWs mentoring successors	• Functional CHWs identifying and mentoring their successor ensures continuity in the delivery of CHW services and enhances the prospect of recruiting individuals willing and able to perform the role. It also serves to manage new CHWs' expectations through supplying a clear and experience-based role description and increases the likelihood of establishing community support for the new CHW through familiarization (1,9,12,14).
Using criteria for CHW recruitment	• Adopting criteria for selection may ensure CHWs have desirable skills but if based on education and/or literacy may influence both gender balance and retention. In areas of low female educational opportunity a strategy based on education/literacy criteria may result in increased selection of males (2). There may also be a negative correlation between education and retention caused by greater alternative employment opportunities for educated workers (1).

contains details of the specific rationale for each of the main themes of response.

Training. Technically strong and relevant training that is valued by CHWs and respected by the community was reported as important for retention and motivation. Providing credible training certification and pathways for strong performers to become peer trainers were also proposed. Several participants identified the development of skills as a key incentive for both attracting and retaining CHWs. It was suggested skills development could focus on both developing core CHW skills required through exchange visits with health facility based supervisors and non-core skills such as training in agricultural techniques that may assist in generating revenue. Initial CHW and supervisor input into the content and form of skills development approaches, and indeed any refresher training, was also suggested to increase credibility. Both non-core function and refresher training were considered more likely to have a positive impact when their implementation was phased. Table 4 contains details of the specific rationale for each of the main themes of response.

Supervision. Many participants considered supervision to be the most important factor for maintaining a functional cadre of motivated CHWs stressing its potential for conveying a sense of belonging and connectedness to the program. Issues around cost and feasibility were however noted. Supervision strategies proposed for increasing motivation and retention were made in themed areas of supportive supervision, group and peer supervision approaches, effective selection and training of supervisors, and supervision frequency and regularity.

Table 5 contains details of the specific rationale for each of these themes of response.

Incentives. Participants spent more time talking about incentives than any of the other thematic areas. A range of financial and non-financial incentives—including those designed to promote CHW credibility and status—were proposed. With regard to financial incentives, the manner in which they are introduced and maintained, and that they are both equitable and reliable was a key concern. When contemplating a move from a voluntary to remunerated system it was recommended that the first step be to conduct an assessment, including a community consultation, to gauge CHW and community expectations, identify the most appropriate, context-based CHW motivators and establish the feasibility of sustaining funding. The potential for altering the status of formerly unpaid workers with both negative and positive consequences was emphasized. Systems for generating payments to CHWs such as flat fee for service, revolving funds, collective funds, and micro credit schemes were flagged.

A broad range of non-financial incentives were proposed falling into the following thematic areas: creating professional pathways and skills development through exchange visits (see Table 4: training), providing CHWs with the tools to perform the job with a particular emphasis on ensuring a reliable supply of drugs, reimbursing expenses and travel costs, supplying mobile phones and airtime in lieu of a salary, and possibly food and other commodities as an incentive for meeting attendance, inspiring the community to take the lead in establishing and maintaining CHW performance incentives, and seeking to

TABLE 4
Suggested strategies related to training

Theme	Rationale
Credible certification	• Symbolic recognition of the CHW role is an incentive to become and remain a CHW (6,13).
Pathways for peer training	• The perceived importance of performing CHW tasks appropriately and the credibility of the approach are enhanced when explained by a peer (5).
	• The opportunity to progress to peer trainer level increases CHW motivation (5,8).
Skills development	• Exchange visits between health facility-based supervisors and CHWs where understanding and respect for each other's role is promoted, skills are developed and connections between the community and health facility are strengthened will motivate CHWs (10,14).
	• Providing training in areas not directly relevant to iCCM but identified by CHWs as beneficial in generating supplementary income (e.g., in agriculture or livelihoods) will motivate CHWs, reduce their need to pursue alternative, revenue generating opportunities, and enhance retention rates (5).
	• Keeping skills up to date with refresher training delivered in the context of supportive supervision and where CHWs select content is a cost-effective incentive for motivating CHWs (8,9,13). Supervisor involvement in training will lend credibility to the content for CHWs (9).

TABLE 5
Suggested strategies related to supervision

Theme	Rationale
Supportive supervision approaches	• Supportive supervision where CHWs are provided with feedback on technical and interpersonal skills and refresher training in response to their needs is motivating for CHWs (1,4,6,8,12).
Group supervision	• A group supervision approach that highlights the benefits of working as and feeling part of a team and creates a less intimidating learning environment is motivating for CHWs (8,9,13).
Peer supervision	Supervision by previous or current CHWs is motivating for CHWs as: • Peers more readily empathize with the perspective of CHWs and often make the best supervisors (8). • "Career pathways" for CHWs to a paid role within the health system may be an incentive (2). • Greater levels of community trust and confidence may result as supervisors are locally known and more likely to be "in tune" with local issues (2). Sensitivity to the management of expectations of those not selected for a peer supervision role was advised (1).
Effective selection and training of supervisors	• Selection and training of supervisors was recognized as important, but there were few tangible suggestions related to approach (8,12). Adult learning approaches were proposed but only after understanding supervisor perspectives as approaches perceived as unconventional may be counterproductive (8).
Supervision frequency and regularity	• Regular (monthly was the preferred interval), maintained and reliable supervision is important for CHW motivation (6,8,12). • Community- and facility-based supervision was viewed favorably depending on logistical feasibility (8,13).

elevate the status and credibility of CHWs by promoting their successes, maintaining their supplies, linking them to the health system in a manner convincing to both CHWs and their community, and providing CHWs with visual signifiers of this standing. Table 6 contains details of the specific rationale for each of these themes of response.

Community involvement and ownership. Increasing levels of community involvement and the perception of ownership of CHW programs was considered critical to the retention and motivation of CHWs by participants. Suggested approaches for achieving this were shifting program emphasis from "community based" to "community owned" where decisions and

TABLE 6
Suggested strategies relating to incentives

Theme	Rationale
Financial incentives	
Introduced equitably and reliably in a manner sensitive to expectations	• Payments should be locally benchmarked to ensure equity and acceptability (7). • If payments are introduced but not reliably maintained CHW retention rates will decline (6).
Altering status of formerly unpaid workers	• Strategies need to be implemented to counter the perception, and potentially detrimental impact on demand for services, of previously unpaid workers being seen as "agents of the government" as opposed to community members (5). • Providing CHWs with the opportunity to benefit from paid roles, such as assisting with mass vaccination programs or developing side businesses, is an incentive that will motivate and does not require large program outlay (5,9).
Remuneration schemes proposed	• Various financial incentive models were put forward as potentially motivating and sustainable. These were: • Revolving funds, where a pre-determined amount of money is provided in a one—off startup payment by the program for CHW acquisition of drugs that are then sold at a small profit (8). • Flat fee per service where demand for services is sufficient to warrant the CHW replenishing drug stocks (11). • Self-managed, collective funds for groups of CHWs with the purpose of providing financial support in times of need (9). • Micro credit strategies for CHWs and access to competitively priced goods (12).
Non-financial incentives	
Equipping CHWs with the tools necessary to perform their role	Provide CHWs with the resources they require to perform the role–especially drugs but also: • Equipment such as rain jackets and torches (1,14). • Travel expenses (10) and direct cost support (9). • Mobile phone airtime (9).
Providing useful and valued commodities	• Provide incentives for meeting attendance in the form of food and consumable products (2).
Generating increased CHW status and community credibility and recognition	Community recognition and CHW status and credibility are critical planks of programmatic success (1,3,5–12,14). Key components are: • Both maintaining drug supply and promoting the CHW role beyond supplying drugs to sustain demand for services (e.g., referral) when stock outs occur (1,6). • Encouraging the community to identify and maintain incentives for CHWs to perform and remain in role (3,5,7). • CHW credibility often relies on community perception of CHW effectiveness and the functional link between CHWs and health facilities and the national health system. Promoting successes and health system links are therefore important (1,8,12). • CHWs being visible as agents of a respected system by wearing program branded t-shirts and badges and/or receiving accreditation certificates and recognition letters that afford status are important for generating community esteem for CHWs (6,10).

TABLE 7
Suggested strategies related to community involvement and ownership

Theme	Rationale
Shift in program emphasis	• The enduring success of a CHW program will occur only when the community worker is truly the representative of the community and is obliged to report back on all the information and training they receive, and where the community take ownership for the direction of the program, what they want to achieve, and how they want to achieve it. This represents a shift in ideology from community "based" to community "owned" programming (1,13).
Approaches to stimulate community involvement and ownership	• Establishing local health committees who provide some form of management support to CHWs to engage with the community, address issues locally, and encourage local ownership of the program will increase CHW motivation (8,10,11). • Community-level meetings, chaired and facilitated by health facility staff at program commencement and annually and designed to promote community understanding and ownership of the program, explore opportunities for community support and contribution, promote CHW successes, and generate demand for services will increase CHW motivation (1,6,9,13).
Retaining program flexibility to respond to community-generated ideas	• Adopting an approach that retains the flexibility to respond to ideas and solutions that come from the community and specifically the CHW is critical to retaining local relevance and the perception in the community of program value (1,14).
Partnership defined quality[17]	• The participatory methodology of *Partnership Defined Quality* allows for a greater understanding of the perspectives of different arms of the health system, e.g., community members (consumers) and health facilities and CHWs (providers). It can be time-consuming and needs to be seen through to completion if positive benefits are to be realized despite having the potential to break down barriers, unite the community, and motivate CHWs (10).[17]

directions are at least in part determined by participants and there is sufficient program flexibility to respond to community generated ideas, establishing local health committees and community meetings to generate interest and support, and adopting participatory methodologies such as "partnership defined quality."[17] Table 7 contains details of the specific rationale for each of the main themes of response.

Information and data management. The retention and motivation of CHWs could potentially improve if they more meaningfully engaged with the data they are asked to collect according to participants. Suggested approaches for achieving this were to encourage CHW data analysis, promote the appreciation of CHW data collection by supervisors, and to potentially adopt a community stakeholder approach to data collection such as the "Community Based Health Information System."[18] Table 8 contains details of the specific rationale for each of the main themes of response.

mHealth. Despite a growing perspective that the designers of health development programs should avail themselves of the latest advances in technology, and especially mobile phones (hence "mHealth") to maximize impact, few participants emphasized this area for the retention and motivation of CHWs. They did however highlight the need to focus on

the person rather than the technology and understand user acceptability; cautioned that phones needed to be kept securely and identified the motivating and functional potential of communication between CHWs as well as CHWs and supervisors. Table 9 contains details of the specific rationale for each of the main themes of response.

DISCUSSION

The volume and diversity of suggestions that emerged from discussions with stakeholders indicate the breadth of activities considered feasible for implementation by programs seeking to influence the motivation and retention of CHWs. Stakeholder participants proposed a range of specific interventions related to recruitment, training, supervision, incentives, community involvement and ownership, information and data management, and mHealth. They also suggested key cross-cutting themes such as packaging interventions that are relevant to the context of implementation. Approaches to tailoring packages of interventions to motivate and retain CHWs have commonly been proposed based on models of motivation.[10,12,19,20] These models emphasize several key areas for program focus, three of which are used here to show that

TABLE 8
Suggested strategies related to information and data management

Theme	Rationale
Meaningful CHW data interaction	Data collection approaches must be coherent, simple, and consistent with a strong emphasis on the data collector appreciating the value of the task if any motivational benefits from improved CHW data collection is to be seen (1,10,13). Proposed means for achieving this were: • CHWs become active in the analysis of the data and find it applicable to their working context (9). • Supervisors appreciate the value of the data collected and as a result increase their level of support and encouragement for CHW data collection (8, 10).
Community stakeholder approach to data collection	• If health facility workers, CHWs, and community members discuss and understand the data that has been collected and see the impact of what is happening in their community over time the influence of CHWs in the community will become increasingly evident resulting in increased CHW motivation. The Community-Based Health Information System (CBHIS) initiated by an international NGO in an East African country feeds back to the community aggregates and analyses performed at the health facility of data that CHWs have collected. Over time CHWs have come to demand this information. The need for champions of the effectiveness of this initiative in the community to promote acceptance and sustainability was emphasized for successful implementation (10).

Theme	Rationale
Focus on the person rather than the technology	• It is the person handling the technology that is the key to success. User acceptability of any tools and training in the necessary skills in their use is critical lest the means of communication become a disproportionate focus (4,14,15). • When introducing new technologies it is important to consult CHWs on the most appropriate ways in which to implement them as they will be in the best position to adapt technology to the local community (2,14).
Importance of security of valued commodities such as mobile phones	• Although the risk of theft is legitimate, seeking to prevent it can be turned into a positive by branding phones with the program name or purpose. This is likely to provide a deterrent by limiting their potential post theft usability as well as promote the perception of community/collective ownership of the CHW's work (14).
Mobile phones as means of reaching the community (motivational)	Opportunities for using mobile technology to motivate CHWs through increased engagement with the community—conceptualized both as the geographic community serviced by the CHW and the community of CHWs themselves—and stimulate their acceptance and ownership of the program were raised. Proposed means of achieving this were: • Communicating program and health messages directly and simultaneously by SMS with large numbers of community members (though the suggestion was made that radio may be just as effective in some cases) (1). • CHWs communicating directly with each other and to provide peer support from a distance. If every CHW has a mobile phone the perception of connectedness to the program may be fostered through such initiatives as sending an SMS to CHWs on their birthday (3). • If the community can see the value added they may be more receptive to undertaking local fundraising to support the associated airtime costs (1).
Mobile phones as a CHW job aid (functional)	Being more effective in work tasks by virtue of mHealth solutions is motivating for CHWs (1,8). Suggested strategies were: • The CHW calling the health facility in the presence of the patient to show that there is someone there to receive them and to reassure them that they will be expected (1,8). • Two-way communication between the health facility-based supervisor and the CHW to alert about rissues and/or upcoming events (1). • Mobile phones used for data collection and submission (1).

many stakeholder perceptions and priorities have a firm foundation in the work motivation theory and contemporary reviews of CHW motivation and incentives.[10,12] These are needs satisfaction, CHW identity and context, motivation and incentives, and CHWs and their community.

Needs satisfaction, CHW identity, and context. The satisfaction of needs occurring in a hierarchy influenced by context is a well-established concept in the work motivation literature.[21] The degree to which a worker's needs are either satisfied or dissatisfied is a factor commonly linked to the likelihood of their retention.[10,11,21,22] Meeting lower level needs alone is unlikely to lead to motivation though it is also unlikely dissatisfied workers can be motivated. Absence of dissatisfaction (termed "satisfaction" in much of the literature) has therefore been proposed as a key indicator for the retention of workers.[11]

The human resources implications of the decentralization of health services have been acknowledged.[23] In Uganda there is evidence to suggest that decentralization has led to a lack of faith in the health system to provide adequately for the basic needs of workers leading to the adoption of alternative "survival strategies" or money generating enterprises.[24] What is most salient to these workers is the need to provide for themselves and their families. The pursuit of this need negates to some degree the possibility of them performing their role (unless of course this is compatible with generating sufficient income). The pursuit of "survival strategies" decreases retention levels and highlights the necessity of interventions designed to "satisfy" workers' basic needs and increase retention rates before or while seeking to motivate them. One suggestion from stakeholders to counter the need for such "survival strategies" was the provision of training designed to provide alternative earning opportunities complementary

to an ongoing CHW role in areas additional to the core iCCM skill set. In addition, identifying the need to reliably supply the tools for the job (including drugs) demonstrates an understanding of the minimal conditions required to satisfy workers and provide a platform for motivating them.

A useful theory for understanding the relationship between needs prioritization and work motivation is the Social Identity Approach.[25] From this perspective, when thinking about needs prioritization one must look at the aspirations workers have for themselves as both individuals and group members. When identifying less as a group member and more as an individual needs tend to focus on individual advancement and actualization. When group or collective identity is more salient, that is when the social context results in greater identification with a collective, needs focus more on enhancing group-based self-esteem through the pursuit of group goals and a sense of relatedness, respect, and belonging.[22,25] The needs and goals of a CHW program are therefore more likely to be pursued when their attainment is compatible with the collective identity of CHWs.[25] If the collective identity of CHWs is viewed positively by CHWs and reinforced in the community it follows that taking actions considered likely to maintain this positive identity will become a priority for CHWs. The emphasis stakeholders continually placed on connecting CHWs to each other (e.g., through peer support mechanisms, mHealth) and the health system (e.g., supervision approaches, use of data, mHealth) indicate that they understand the value of seeking compatibility between program goals and CHW needs through building a shared and positive identity.

Stakeholders also stressed the need to understand the broader community context of CHW operation, to seek community support for CHWs, and for the program to engage and consult on key decisions relating to recruitment if CHWs are to

be motivated and retained. In terms of satisfaction and motivation it seems that the most important aspect for programs is to understand how the local context influences CHW needs and priorities and how these needs and priorities are formed and acted upon as a function of a positive CHW identity. Pursuing such enquiry through formative research was emphasized by stakeholders. It is likely that an understanding of the degree to which CHWs accept and embrace the wider perception of their role (its identity) and its functions, and the degree to which they feel it meets their needs will yield useful information relating to what satisfies (or dissatisfies) and motivates these CHWs in their areas of operation.

Motivation and incentives. The concepts of "expectancy" and "equity" have been proposed as most useful in understanding the complex interplay of factors that influence outcomes stemming from the use of incentives.[21]

"Expectancy" refers to the process where the degree to which a given incentive leads to the outcome intended by the program is contingent upon both the value placed on the incentive by the CHW (based on need) and a reasonable expectation that their actions may lead to its attainment.[21] "Equity" refers to the theory that over time workers develop beliefs about their input and the resultant output they receive through comparison with others, and that acceptance of program aims and outcomes are enhanced by the perception of fairness and equality of these outputs and the workplace in general.[22] Although historically theories of workplace equity (and indeed the broad area of incentives) have focused on parity of financial incentives and remuneration, more recently equity has been considered from an organizational standpoint.[21] This has led to more transparent and participatory approaches such as collaboration between workers and supervisors when setting goals and emphasizing worker roles as a functional part of a larger, effective mechanism.[26]

International stakeholders proposed a range of financial and non-financial incentives for retaining and motivating CHWs. They stressed the importance of understanding CHW expectations and warned of the durability of perceptions that specific rewards will follow effort even in the face of contrary information. They highlighted that failure of programs to deliver on CHW expectations (expectancy) would be viewed as a breach of trust (equity) and almost certainly result in drastic consequences for the retention of workers. It was recommended that a package of incentives be tailored to match CHW expectations and program priorities and that once established they be reliably delivered.

In concert with the principles of workplace equity as described, international stakeholders also emphasized the importance of promoting connectedness of CHWs to the health system. They suggested linking CHWs to supervisors and peers through mHealth applications and providing CHWs with symbolic signifiers of their role and connection to a respected program. They also advocated for greater community collaboration in the recruitment of CHWs, suggesting it would increase the perception of representativeness and a broader understanding of the value of the role. Also proposed were the creation of career pathways and ongoing skills development opportunities and the provision of appropriate tools for the job. A range of financial incentives were also explored however, as with all incentives described, stakeholders warned that if introduced programs must be sure to consistently and reliably deliver them, and highlight the link between CHW performance and any contingent rewards, if they are to have an ongoing impact on retention and motivation.

CHWs and their community. International stakeholders emphasized the factor commonly considered to be most critical to the success of CHW programs—the relationship between the CHW and their community.[5,10,27,28] When advocating for a change in ideology away from community-based to community-owned programming, international stakeholders echoed the suggestion that the WHO's task-shifting agenda insufficiently emphasizes the need for CHWs to be "embedded" in their communities of operation.[5] Campbell and Scott[5] point to a recent trend of moving away from the Alma Ata conference's emphasis on the importance of community participation in all aspects of CHW performance, which they attribute to it being too difficult. They argue for a return to greater levels of input from local communities in the design and operations of health-focused CHW programs and, in common with a section of international stakeholders, suggest that the perceived interests and needs of communities will be more closely met as a result.

A number of suggestions were made to enhance community awareness of, and participation in, CHW programs. The establishment of committees and discussion forums as well as promoting the use and understanding of CHW collected data were put forward as a means of improving local understanding and credibility of CHW programs. These suggestions were supported in the CHW motivation literature, which repeatedly highlights the potential for such strategies to improve CHW support, status, and standing leading to greater levels of retention and motivation.[5,10,27] The key challenge for programs would appear to be retaining the flexibility, especially at national scale, to engage with local issues and adopt local solutions.

There were some study limitations. Although recruiting stakeholder participants who the authors were aware had extensive experience of both national level and small-scale CHW programs generated diverse and valuable data, it is likely additional stakeholders not known to the authors could also have provided data of value. For this reason a larger number of participants recruited through the snowball method would have been desirable. Although three stakeholders who currently work with CHWs were recruited, a greater number of participants with direct, day-to-day interaction with CHWs and indeed engaging CHWs themselves would undoubtedly have added a valuable perspective. In addition, participants from the Ministry of Health in countries implementing CHW programs would certainly have provided key insights. Because of the importance of their views, key Ministry of Health personnel have since been engaged regarding the design and feasibility of interventions in inSCALE's countries of operation, although they were not included in the current study because the aim was to sample figures with experience in multiple settings. More than half of the participants were either based in the United States or worked for American institutions (universities and NGOs); greater diversity of national affiliation among participants would have been preferable.

Although the perceptions and priorities of stakeholders provide a rich description of the range of possibilities for influencing CHW motivation and retention, it is important to note that they do not constitute recommendations for implementers. Rather they are intended as a first step toward the

development of appropriate interventions. During this development an assessment needs to be made as to the applicability of stakeholder suggestions in context, and consideration given to the implementation scale of a given program, before interventions are adopted to ensure feasibility when implementing large public sector CHW programs based on the lessons of smaller scale programs. The second step, as undertaken by the inSCALE project, is to review the existing evidence in each suggested intervention area to establish which activities and approaches should be adopted as currently the most promising and which represent an opportunity for demonstrating the impact of new, innovative practice. Such an approach followed by context-specific formative research, including, critically, engagement with CHWs and the supporters and recipients of the services they provide, and appropriate piloting of chosen interventions with users, is most likely to produce interventions that have a sustained and positive impact on the motivation and retention of CHWs delivering iCCM.

CONCLUSION

This work has explored interventions identified by international stakeholders as having the greatest potential for impact on CHW motivation and retention. Their suggestions resonate with key areas of the work motivation and CHW literature; namely, needs satisfaction, CHW identity and context; motivation and incentives; and, CHWs and their community. It has been suggested that programs seeking to positively influence CHW motivation and retention need to adopt a multi-level approach. Although there are a range of specific individual interventions that have stakeholder support, tailoring an appropriate package, which is feasible in context and balances the needs of the program with the needs of CHWs while achieving community support for the program is considered the approach most likely to result in a positive and enduring impact on the motivation and retention of CHWs.

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