

## Community Health Workers Providing Government Community Case Management for Child Survival in Sub-Saharan Africa: Who Are They and What Are They Expected to Do?

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**Abstract.** We describe community health workers (CHWs) in government community case management (CCM) programs for child survival across sub-Saharan Africa. In sub-Saharan Africa, 91% of 44 United Nations Children's Fund (UNICEF) offices responded to a cross-sectional survey in 2010. Frequencies describe CHW profiles and activities in government CCM programs ( $N = 29$ ). Although a few programs paid CHWs a salary or conversely, rewarded CHWs purely on a non-financial basis, most programs combined financial and non-financial incentives and had training for 1 week. Not all programs allowed CHWs to provide zinc, use timers, dispense antibiotics, or use rapid diagnostic tests. Many CHWs undertake health promotion, but fewer CHWs provide soap, water treatment products, indoor residual spraying, or ready-to-use therapeutic foods. For newborn care, very few promote kangaroo care, and they do not provide antibiotics or resuscitation. Even if CHWs are as varied as the health systems in which they work, more work must be done in terms of the design and implementation of the CHW programs for them to realize their potential.

### INTRODUCTION

In sub-Saharan Africa, diarrhea, pneumonia, malaria, severe and acute malnutrition, and newborn conditions are the leading causes of child mortality.<sup>1</sup> Many child deaths can be avoided with appropriate and timely care, but access to treatment remains inadequate, especially for those children who are marginalized the most.<sup>2–4</sup> Based on treatment algorithms refined under integrated management of child illness (IMCI), community case management (CCM) broadens access to treatment by training and supporting community health workers (CHWs) to assess, classify, treat, and refer sick children in the communities where they live,<sup>5–9</sup> and therefore, this program should increase access to care for those children who are most marginalized.

Because of the potential to reach marginalized children most in need of treatment, governments are scaling up CCM of child diarrhea, pneumonia, and malaria throughout sub-Saharan Africa<sup>10</sup>; however, little is known about the profile of CHWs carrying out this intervention. Recent reviews<sup>11–13</sup> reinforce a long-standing body of work<sup>14,15</sup> on the general role of CHWs in primary healthcare, with a few reviews reaching consensus on the effectiveness of CHWs for child survival in particular.<sup>16</sup> Although information about the demographic characteristics, roles, and responsibilities of CHWs is needed to inform operational models for CCM,<sup>17,18</sup> findings from two cross-national surveys on CCM disclose some details regarding CHW profiles.<sup>19,20</sup> To support the scaling up of CCM, additional information about the educational level, sex, ethnicity, level of training, population covered, and range of activities undertaken by CHWs is essential for refining supervision and operational guidance for CCM. This article updates and expands previous work done on CHWs delivering CCM<sup>18,19</sup> by detailing the profile (education level, training, and sex), inputs (incentives and supplies), and activities (curative and

preventive) of CHWs across a broader range of CCM conditions (namely diarrhea, malaria, pneumonia, nutrition, and newborn care) within government CCM programs in sub-Saharan Africa.

### METHODS

A cross-sectional survey was initiated in 2010 to all 44 UNICEF country offices in the sub-Saharan African region through questionnaires administered separately by the West and Central Africa Regional Office (WCARO) and the Eastern and Southern Africa Regional Office (ESARO). The questionnaires included closed-ended questions on forms of remuneration/motivation, duration of CCM training, and range of activities expected of CHWs working in government CCM programs. Data were also collected on availability of CCM drugs and diagnostics at primary healthcare facilities. In addition, ESARO collected information on the population covered by CHWs as well as their educational level, duration of general health training, and sex. Data entry and analysis were undertaken using Epi Info 7.<sup>21</sup> During analysis, country and regional offices were followed up to ensure accuracy of data, specifically to complete missing information and clarify qualitative comments made by country offices in response to the survey. These clarifications were logged in Word documents and used to help explain non-responses or outlier responses.

In the survey, we defined a CHW as any health worker who carries out functions related to healthcare delivery, is trained in some way to deliver an intervention, and has no formal professional or tertiary education degree. Because some countries have more than one kind of CHW undertaking child survival activities, we focused data collection on the most numerous government CHW cadre that provides curative treatment of child illness at the community level. Various forms of remuneration/motivation given to CHWs in government programs were considered: regular payments in the form of salaries, financial incentives (mark up on drugs, user fees, or other partial financial incentives), and non-financial incentives (clothing, equipment, job aides, training, etc.). The survey measured what CHWs were expected to be doing according to their

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roles in national programs as per the understanding of UNICEF country officers; it did not measure actual performance.

Because we are interested in implementation at the national scale in routine programs, we focused our research on government implementation defined as having CHWs trained and deployed to provide curative services for CCM conditions supported by the Ministry of Health (MoH). Governments that had begun training CHWs for CCM but had not yet deployed them to provide curative services in 2010 were not considered as implementing CCM. Governments that were implementing CCM as pilot projects or operations research were not considered to be implementing CCM in routine programs and thus, were not included. Geographic scale of implementation was measured as being either (1) less than one-half of the districts in the country or (2) greater than or equal to one-half of the districts in the country. Details regarding extent of MoH implementation in terms of CCM conditions and scale in sub-Saharan Africa are reported elsewhere.<sup>10</sup>

## RESULTS

**Respondents.** Forty of forty-four (91%) country offices covered by UNICEF's sub-Saharan African regional offices responded. The four UNICEF country offices that did not respond included Cape Verde, Gabon, Guinea-Bissau, and Sao Tome and Principe. Of these 40 country offices, 29 (16 WCAROs and 13 ESAROs) offices reported that governments were implementing CCM, and these programs are the focus of our analysis regarding remuneration/motivation and range of activities undertaken (Supplemental Tables 1–5). After follow-up with country offices, 22 offices provided information on the duration of CCM training, and 19 offices provided information on the general health training of CHWs in their programs.

**Government CCM CHW profiles.** Country offices reported governments using a combination of incentives for CHWs, with financial and non-financial partial incentives being the most common. Only a few governments paid CHWs monthly salaries (Ethiopia, Guinea, Lesotho, Malawi, Niger, and Nigeria); at the other extreme, only a few countries had volunteers who exclusively received non-financial incentives in recognition of their contributions (Central African Republic, Côte d'Ivoire, Democratic Republic of the Congo, Eritrea, and Liberia). Among the kinds of financial incentives reported, three governments allowed CHWs to collect user fees (Mali, Senegal, and Togo), whereas a few countries, mostly in West Africa, allowed CHWs to collect a mark up on drugs (Benin, Burkina Faso, Ghana, Madagascar, Mali, Mauritania, Senegal, and Uganda). Although there was no association between the number of CCM conditions addressed by government programs and the forms of incentives or remuneration provided, governments that paid CHWs monthly salaries or financial incentives of some kind were more likely to have CCM in one-half or more of the districts in the country (Figure 1).

Two country offices reported additional information regarding the financing for CHW programs. In South Africa, the government subcontracts non-governmental organizations (NGOs) to manage CHWs that deliver government service packages at the home/community level. Funding is channeled through the Department of Health and comes from various sources, including the Expanded Public Works

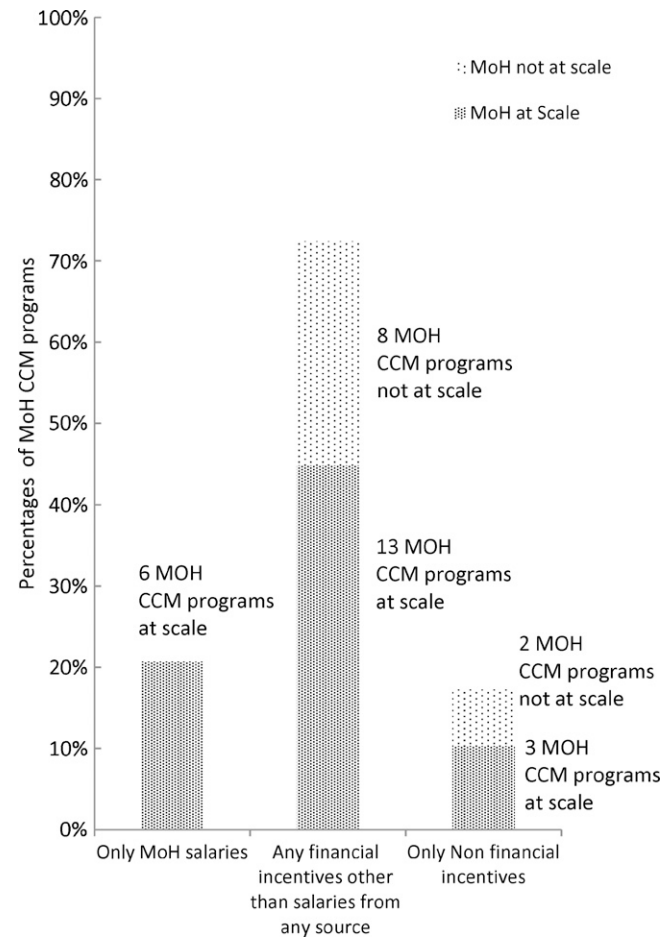


FIGURE 1. UNICEF country offices reporting forms of motivation received by CHWs working in MoH CCM programs by scale (greater than 49% of all districts in the country) for diarrhea, malaria, and/or pneumonia programs in sub-Saharan Africa in 2010 ( $N = 29$ ).

program, which is a job creation and poverty alleviation program. In Rwanda, the government allocates funds collectively for CHWs based on measured outputs. Money is paid to CHW cooperatives rather than individual CHWs. The cooperatives invest the funds and use the profits for the welfare of their CHW members.

Twelve country offices from Eastern and Southern Africa answered questions regarding educational level, sex, and population covered. In Ethiopia and Malawi, CHWs had completed at least secondary school, whereas other country offices reported to have CHWs with less than secondary school education. With regard to information on the sex of CHWs, four countries were mixed (Eritrea, Madagascar, Mozambique, and Rwanda), two countries were mostly male (Malawi and Zambia), and six countries were primarily female (Ethiopia, Kenya, Lesotho, Swaziland, Uganda, and Zimbabwe). In terms of households assigned to each CHW, government CCM programs varied from less than or equal to 100 households (Lesotho, Rwanda, Swaziland, and Uganda) to greater than 100 but less than or equal to 500 households (Eritrea, Ethiopia, Kenya, Mozambique, and Zimbabwe) to greater than 500 but under 1,000 households (Malawi and Zambia).

Although most government CCM programs (64%; 14 of 22) offered training for up to 1 week, some (23%; 5 of 22) programs

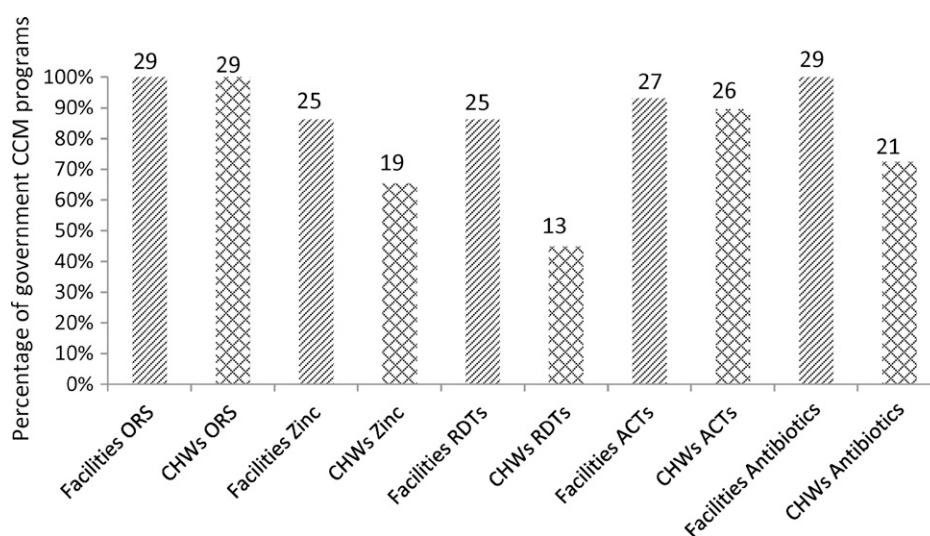


FIGURE 2. UNICEF country offices reporting facility and CHW diagnostics and treatments in government implementation of CCM diarrhea, malaria, and/or pneumonia programs in sub-Saharan Africa in 2010 ( $N = 29$ ,  $N = 28$  for malaria).

offered up to 2 weeks of training, and a few (14%; 3 of 22) programs offered training for up to 3 months. Duration of CCM training was not associated with the type of motivation, number of CCM conditions, or whether the government program was operating in one-half or more of the districts. Almost one-half (47%; 9 of 19) of government CCM programs had general health training that lasted between 2 weeks and 3 months, whereas CCM programs with salaried workers tended to have training of up to 1 year or more.

**Government CCM CHW activities.** With regard to curative activities related to diarrhea, country offices reported that all government programs were expected to have oral rehydration salts at the facility and CHW levels and that all CHWs were expected to promote the increase of fluids and continued

feeding for children sick with diarrhea (Figure 2). Fewer government programs (86%; 25 of 29) expected primary healthcare facilities to dispense zinc, and even fewer programs (66%; 19 of 29) expected CHWs to dispense zinc. With regard to malaria, government primary healthcare facilities expected to have rapid diagnostic tests (RDTs) were almost double (89%; 25 of 28) the number of government CHWs expected to have RDTs (46%; 13 of 28), whereas almost all government primary healthcare facilities (96%; 26 of 28) and CHWs (93%; 26 of 28) were expected to have artemisinin-based combination therapy (ACTs). Although all government primary healthcare facilities were expected to have antibiotics for pneumonia, fewer programs expected government CHWs to either have timers (76%; 22 of 29) or antibiotics (72%; 21 of 29).

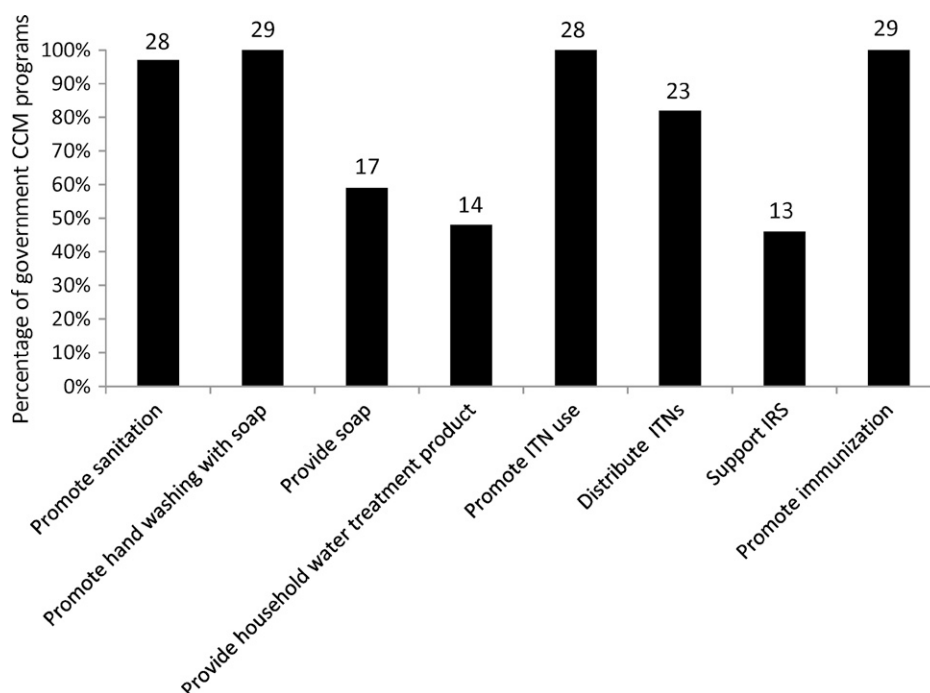


FIGURE 3. UNICEF country offices reporting CHW health promotion and preventive activities in government implementation of CCM diarrhea, malaria, and/or pneumonia programs in sub-Saharan Africa in 2010 ( $N = 29$ ,  $N = 28$  for malaria).

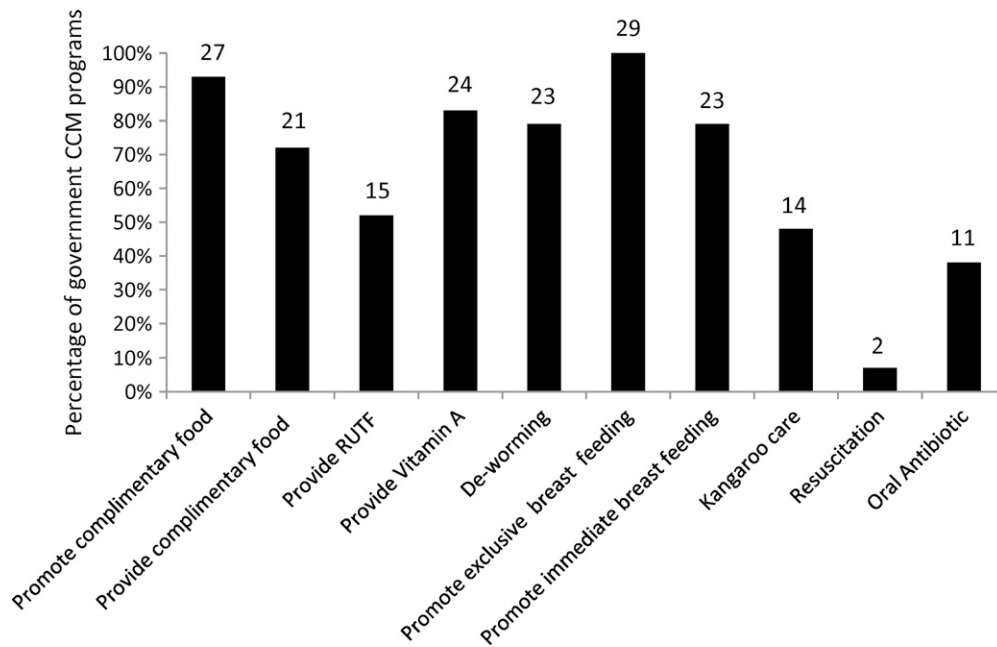


FIGURE 4. UNICEF country offices reporting activities related to nutrition and newborn care undertaken by CHWs involved in government implementation of CCM diarrhea, malaria, and/or pneumonia programs in sub-Saharan Africa in 2010 ( $N = 29$ ).

With regard to health promotion directly related to CCM diarrhea, malaria, and pneumonia programs, all or nearly all government programs expected CHWs to promote sanitation, handwashing with soap, use of insecticide-treated nets (ITNs), and immunization. Fewer programs provided soap (59%; 17 of 29) or household water treatment products (48%; 14 of 29). Although a large proportion of government programs expected CHWs to distribute ITNs, fewer programs expected them to support indoor residual spraying (IRS; 46%; 13 of 28) (Figure 3).

For nutrition, high proportions of government programs expect CHWs to provide vitamin A (83%; 24 of 29) as well as deworming (79%; 23 of 29). All government programs expect CHWs to promote exclusive breastfeeding, and almost all programs promote complementary feeding (93%; 27 of 29). Fewer programs expect CHWs to provide complementary food (72%; 21 of 29), and even fewer programs expect them to distribute ready-to-use therapeutic food (RUTF; 52%; 15 of 29). With regard to newborn care, fewer government programs expect CHWs to promote immediate breastfeeding (79%; 23 of 29) than exclusive breastfeeding (100%). Very few governments expect CHWs involved in CCM of diarrhea, malaria, or pneumonia programs to promote kangaroo mother care (48%; 14 of 29) and even fewer programs expect CHWs to undertake resuscitation (7%; Niger and Senegal) or provide oral antibiotics (38%; 11 of 29) for newborns (Figure 4). Ethiopia does permit CHWs to undertake resuscitation and provide oral antibiotics for newborns but only in a limited research setting, which for the purposes of this survey, was not considered as routine government implementation.

## DISCUSSION

In summary, our findings show that most CHWs working for government CCM programs in sub-Saharan Africa receive a

combination of incentives for their work. Many CHWs receive financial and/or non-financial partial incentives, and only a small number of CHWs are salaried workers or at the other extreme, volunteers who are not financially rewarded in any manner. Government programs seem to use CHWs with less than secondary schooling and either female CHWs or a mix of male and female CHWs. The number of households each government program expects a CHW to cover varies substantially. Despite these differences across CCM programs, most CHWs working in government CCM programs receive up to 1 week of CCM training. In terms of curative tasks, although all government CHWs are expected to provide oral rehydration salts (ORS), fewer CHWs are expected to provide zinc, dispense antibiotics, or use timers or RDTs. Many government CHWs are tasked with general health promotion activities, but they are not expected to be provide soap, water treatment products, IRS, or provision of RUTF. With regard to newborn care, very few CHWs implementing CCM for the sick child are expected to be involved in promoting kangaroo care or providing antibiotics or resuscitation for newborns.

This survey is desk-based, with UNICEF country offices reporting their perceptions of who CHWs working in government CCM programs are and what they are expected to do. Despite follow-up enquiries, it proved difficult at times to collect data in a standardized form for such a large number of countries with programs that vary distinctly. These data are not meant to replace improved human resource information systems that include CHWs or more in-depth but more time- and resource-intensive research based on interviews with CHWs and observations of their actual performance. It, nonetheless, provides an overview across a continent that confirms previous research<sup>19,20</sup> and points to important patterns that need to be considered for policy and programs.

Other studies have found that incentives used to reward CHWs working in government CCM programs vary substantially across countries in low and middle income countries.<sup>18</sup>

The few countries that rely on user fees and mark up on drugs are largely West African, most likely because of the legacy of the Bamako Initiative. The question as to whether CHWs should be paid remains controversial.<sup>13</sup> The issue may not be easily resolved given the variance that exists among CHW types and their expected roles in the health systems. Financial incentives are effective when linked to improving staff motivation and quality, but they are less effective when focused on cost recovery alone because of how it skews incentives to irrational care.<sup>22</sup> Financial incentives also do not have a universal value across national contexts. In Nepal, volunteers did not want to be paid, because payment was seen to equate them with unresponsive government workers. Work that they undertook at their discretion was seen as helping the community and improving their social status. At the same time, they did expect to be compensated for scheduled activities, which may take away from their livelihood activities.<sup>23</sup> Even with such a positive finding about the importance of volunteerism in a CHW program, evidence that volunteerism can be sustained for long periods is contested.<sup>13</sup> Although CHWs may originally be expected to spend only a small amount of time on health-related activities, community demands and task-shifting measures may increasingly require full-time performance.<sup>12,13</sup> Our data show that, as government CCM programs move to scale, they are more likely to financially reward CHWs working for them.

The question of how best to motivate CHWs is much broader than how to reward them for their time,<sup>24</sup> and the answer is not based solely on extrinsic factors. “The motivation and retention of CHWs is influenced by who they are in the community context. The inherent characteristics of CHWs, such as their age, sex, ethnicity and even economic status will affect how they are perceived by community members as well as their ability to work effectively.”<sup>24</sup> Credibility in terms of their skills, their role in competing health markets, and their standing in the health system—as well as their role in the community—is important.<sup>25</sup> Sex is one element of the social status of CHWs that influences their intrinsic and extrinsic motivation. Many articles do not disclose whether CHWs are male or female. In one review,<sup>13</sup> 70% of articles with information of this kind reported female CHWs. Although assumptions are sometimes made that female CHWs are more effective than male CHWs, there is insufficient research or evidence to verify this assumption.<sup>26</sup> Some articles document how sex colors both the professional and personal elements of being a CHW.<sup>27–29</sup>

The most worrying aspect of this information is that most CHWs seem to receive the same kind of CCM training regardless of their occupational status (whether paid) or the complexity of the CCM program being implemented (number of health conditions addressed). Although much effort has gone to standardizing training for literate CHWs, more work needs to be done to adapt training to targeted CHWs whether literate or not and ensure that competency is gained from training and ensured in practice. Volunteers may be unable to spare long periods of time for training and may require more frequent refresher training and specialized supervision models that emphasize clinical supervision on site. Supportive supervision that defines objectives and expectations, monitors performance, helps interpret data, provides focused education, helps with planning and problem solving, and enhances community participation is critical.<sup>30</sup> In practice, supervision

of CHWs can be non-existent,<sup>31</sup> or when available, it faces its own challenges, which limits its constructive purpose.<sup>32–34</sup>

Although competencies regarding CHW’s curative CCM role have been clarified, similar competencies with regard to their roles in health promotion and prevention are being developed as part of the World Health Organization (WHO)–UNICEF training materials for CHWs looking after children’s health growth and development. This material includes guidance on the range of promotion messages and the forms of promotion (counseling, cards, etc.) and follow-up needed. Overall, government programs expected CHWs involved in CCM to be engaged in various health promotion activities but less involved when it came to providing products (bednets, soap, or water treatment products) or supporting activities outside of the health sector (IRS). More research is required to understand the balance between the preventive and curative roles that CHWs undertake. Although CHWs report that CCM increases their status,<sup>35,36</sup> making their health prevention and promotion roles more credible, this finding has not been corroborated by households. Research is also required to see whether preventative commodities can as effectively boost CHW credibility and demand for CCM services as curative commodities.

As previously found by in other work,<sup>19,20</sup> there is large variation in terms of the number of households that each CHW is expected to cover. Little is known about the appropriate population ratio for CCM CHWs or the settlement patterns involved (high to low population density). Although a small population ratio is required for counseling and behavioral interventions, larger population ratios are required to ensure adequate caseloads of sick children to maintain curative skills. In addition, there is a limit to how many different activities a CCM worker is able to effectively undertake. CHWs play a vital role in the assessment of malnutrition and promotion of various nutrition messages, but they are not expected to provide complementary feeding or RUTF.<sup>8</sup> Although CCM of sick children entails family members seeking out the CHW when a child falls ill, implementation of CCM for newborns entails the CHWs seeking out pregnant women, mothers, and newborns for early and repeated home visits. The full integration of curative roles for CHWs across all these conditions entails a different kind of workload and more intensive counseling skills, which may not be feasible in every context.

In general, more work needs to be done to support CHWs to reach their potential in saving children’s lives from conditions for which effective interventions exist. As the work by Lehmann and Sanders<sup>13</sup> concludes, “CHW programs are not cheap or easy, but remain a good investment, since the alternative in reality is no care at all for the poor living in geographically peripheral areas.” More work needs to be done in terms of supporting the design of CHW programs (CHW role definition, selection, community recognition, health service integration, advancement, and geographic distribution) and their implementation (training and refresher training, supervision, supply systems, and incentives/remuneration). With regard to CCM particularly, standardization of competencies gained from CCM training is essential, with the format and duration of such training adapted to the different types of CHW cadres involved. With regard to the curative roles of CHWs, more work must be done to support the role of CHWs in quality integrated CCM by ensuring their access to diagnostics and

newer products, such as zinc. More attention needs to be paid to the health promotion and counseling roles of CHWs, including their involvement in newborn care, taking into consideration the support that they are provided and their roles in the health systems and the communities in which they work.

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Note: Supplemental tables appear at [www.ajtmh.org](http://www.ajtmh.org).

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