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To cite this article: Doris W Njomo, Mary Amuyunzu-Nyamongo, Japheth K Magambo, Peter K Ngunjiri & Sammy M Njenga (2012) Factors associated with the motivation of community drug distributors in the lymphatic Filariasis Elimination Programme in Kenya, Southern African Journal of Epidemiology and Infection, 27:2, 66-70, DOI: [10.1080/10158782.2012.11441487](https://doi.org/10.1080/10158782.2012.11441487)

To link to this article: <https://doi.org/10.1080/10158782.2012.11441487>



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Published online: 15 Jul 2015.



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# Factors associated with the motivation of community drug distributors in the Lymphatic Filariasis Elimination Programme in Kenya

DW Njomo, M Amuyunzu-Nyamongo, JK Magambo, PK Nguni, SM Njenga

Doris W Njomo,<sup>1,3</sup> Mary Amuyunzu-Nyamongo,<sup>2</sup> Japheth K Magambo,<sup>3</sup> Peter K Nguni,<sup>4</sup> Sammy M Njenga,<sup>1</sup> Kenya Medical Research Institute; <sup>2</sup>African Institute for Health and Development, Kenya; <sup>3</sup>Institute of Tropical Medicine and Infectious Diseases, Jomo Kenyatta University of Agriculture and Technology, Kenya; <sup>4</sup>Daystar University, Nairobi, Kenya.

Correspondence to: Doris W Njomo, PO Box 54840-00200, Nairobi, Kenya.

E-mail: dnjomo@kemri.org or dwairimunjomo@yahoo.co.uk

Annual mass drug administration (MDA) is the main strategy for elimination of lymphatic filariasis (LF), globally. In Kenya, community drug distributors (CDDs) are used to deliver drugs to household members. To determine factors influencing CDDs' motivation, a retrospective cross-sectional study based on qualitative data was conducted in Kwale and Malindi districts after the 2008 MDA. In Kwale, Tsimba location represented high and Gadini low compliance while in Malindi, Goshi and Gongoni locations represented high and low compliance areas, respectively. Fifteen CDDs, 80 opinion leaders, 80 LF patients, five health personnel, four LF coordinators and the National Programme Manager were purposively selected and interviewed. Sixteen focus group discussions (FGDs) were conducted with single-sex adult and youth male and female groups. The factors that possibly had a positive influence on CDDs' motivation were: higher education level, trust and familiarity with community members. All CDDs reported that getting recognised, being trained on LF and an innate desire to help their communities raised their motivation. Factors that possibly had negative influence included: inadequate training, drug supplies and community sensitisation and lack of supervision. The majority of the CDDs reported a lack of or outdated record-keeping books, a limited drug distribution period, inadequate moral support and incentives as negative factors on their motivation. Factors that motivate CDDs are those that enhance their capacities to perform their duties and endear respect in the communities where they serve.

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South Afr J Epidemiol Infect 2012;27(2):66-70

## Introduction

Lymphatic filariasis (LF), a mosquito-transmitted disease, is ranked as the second largest cause of disability in the world.<sup>1</sup> Infection leads to clinical manifestations which include lymphoedema of limbs and genitalia (especially hydroceles) and elephantiasis. By 2004, about 41 million people worldwide had visible symptoms.<sup>2</sup> A further 76 million have hidden infections, most often with microfilariae (mf) in their blood and hidden internal damage to their lymphatic and renal systems.<sup>3</sup> About 44 million infected patients have recurrent infections and abnormalities of renal functions.<sup>3</sup> The World Health Organization (WHO) recommends that a single dose of DEC or ivermectin, combined with albendazole, be given annually for four to six years to all populations living in endemic areas to eliminate LF.<sup>4</sup>

The global elimination campaign has the challenge of persuading people who have no disease symptoms to take the drugs.<sup>3</sup> Groups of persons who remain totally untreated form reservoirs of microfilariae (mf) contributing to continued transmission of infection.<sup>5</sup> In Kenya, CDDs trained by health personnel and selected using the WHO criteria deliver drugs to individuals in their homes, observe drug swallowing (directly observed treatment or DOT), keep records, make callbacks to

those missed on initial visits, and return records to divisional health facilities. Effective implementation of the elimination programme requires aggressive sensitisation and elaborate social mobilisation. Communities decide on the best way to remunerate and motivate the CDDs. Remuneration of CDDs was reported as a contentious issue in Kenya.<sup>6</sup>

The programme data for three MDA rounds (2003, 2005 and 2008) in communities of Kwale and Malindi Districts show a drop in coverage from 85% to 71% to 64.3% and 77% to 76% to 62.8%, respectively. The present study focused on factors associated with CDDs' motivation and their influence on community compliance with treatment with a view of suggesting mitigating measures. Motivation refers to internal and external factors that stimulate desire and energy in individuals to be continually interested and committed to a role, and to exert persistent effort in attaining a goal.<sup>7</sup>

## Materials and methods

### Study site

Kwale District, 40 kilometers south of Mombasa, with an area of 8,360 km<sup>2</sup> and a population of 649,931 persons,<sup>8</sup> lies at

an altitude of between 60 and 135 metres above sea level. Recent literature shows that mf prevalence is 13.7%.<sup>9</sup> Malindi District, 120 kilometers northeast of Mombasa, has an area of 7,605 km<sup>2</sup>, a population of 384,643<sup>8</sup> and lies between latitudes 2.2° and 4° south and between longitudes 39° and 41° east. Malindi villages have a filarial endemicity of at least 15%.<sup>10</sup> The inhabitants in both districts are mainly peasant farmers living in grass-thatched houses with mud walls.

### Study design

This was a retrospective cross-sectional study that was based on the 2008 MDA. In Kwale, Tsimba location represented high (80% and above) and Gadini low (60% and below) coverage while in Malindi, Goshi location represented high and Gongoni low coverage areas. Through systematic random sampling, a total of eight villages were then selected. Qualitative data were collected through interviews from the following groups: 15 CDDs, 80 LF patients with clinical manifestations, 80 opinion leaders, five health personnel, four LF coordinators and the programme manager, all purposively selected. Sixteen FGDs moderated by the lead author, a PhD student assisted by trained field assistants, were conducted with adult and youth male and female participants in single-sex groups. Ethical clearance was received from Kenya Medical Research Institute, (Protocol Number 1077) and WHO, (Tropical Diseases Research ID No. A61106) and informed consent sought from all study participants.

The data were examined separately for clusters recording high and low coverage (proportion of eligible people who received drugs) and compliance (proportion of eligible people who received and ingested drugs) and analysed manually according to the following study themes: CDD selection, training, record maintenance, acquisition of drugs, community sensitisation, CDD incentives and length of distribution period. Similar questions were asked to various types of respondents and data triangulated in order to check for consistency and divergence of views.

### Results

The study results showed that various issues may have influenced CDDs' motivation and could be associated with treatment compliance.

Of the total of 15 CDDs interviewed, the majority (three-fifths) were from high while two-fifths were from low compliance villages. This implies that there was understaffing in low compliance villages. More (five) CDDs from high compared to only one from low compliance villages had completed high school, implying higher education level of CDDs in high compliance villages (Table 1).

#### CDD selection

Two-fifths of the CDDs were selected for having high education levels, a similar proportion for having volunteered

Table 1: Socio-economic characteristics of community drug distributors

CDDs	Low compliance (n=6)	High compliance (n=9)
<b>Education N= 15</b>		
Incomplete primary school	1	-
Completed primary school	3	2
Incomplete high school	1	2
Completed high school	1	5
<b>Occupation N =15</b>		
Business	2	2
Farmer	2	5
CHW	2	1
Student	-	1
<b>Religion N=15</b>		
Christian	2	5
Muslim	4	4

Low compliance: 60% and below treatment coverage  
High compliance: 80% and above treatment coverage

in past community programmes and one-third for their good behaviour and familiarity with village members. Only one male CDD from a low compliance village was selected for being known by his area chief. About one-half (four from low and three from high compliance villages) of the CDDs observed that there was no transparency in the selection process. One-fifth of the opinion leaders and the majority of all FGD participants emphasised the importance of selecting CDDs who were village residents as community members were unwilling to receive drugs from strangers. A female adult participant in one FGD in a low compliance village reported that:

*"My village members in the last MDA questioned why strangers had to be brought to distribute drugs yet we have our own boys and girls who are well known to the villagers and have distributed these drugs previously, that is why people refused to take these drugs the last time compared to the first time when our own youth distributed the drugs and people really took the drugs."*

Four-fifths of the CDDs agreed to distribute drugs because they liked helping their communities, more than one-fifth (four) because of the trust and recognition they gained for participating in similar programmes and one-fifth because they felt obligated since many people disliked volunteer work.

#### CDD training

Nearly all (14) CDDs received training although one-third from high and one-half from low compliance villages indicated that the sessions were relatively brief and hurriedly done. One CDD from a low compliance village was not trained. Only about one-half (eight), the majority (five) being from high compliance villages received a full day's training which was conducted by health personnel and whose content was in tandem with WHO's recommendations.

## Record maintenance

All CDDs maintained and submitted records to the health workers, although one health worker from a low compliance village reported that some villages lacked record books. All CDDs reported that they conducted DOT although two-thirds from high and one-third from low compliance villages left drugs behind to be swallowed in their absence.

## Acquisition of drugs

Slightly more than one-half (six from high and two from low compliance villages), of the CDDs received sufficient quantities of drugs, while four (three from high and one from low compliance villages) received insufficient amounts. Three CDDs from low compliance villages indicated having received excess drugs although one of them received them late which may have negatively impacted on his ability to effectively conduct the distribution (Table 2).

**Table 2: Sufficiency of quantity of drugs received**

Sufficient	Low compliance	High compliance
Enough	2	6
Not enough	1	3
More than enough	3	-
<b>Total</b>	<b>6</b>	<b>9</b>

Low compliance: 60% and below treatment coverage

High compliance: 80% and above treatment coverage

## Number of CDDs and households allocated

One-third (two from high and three from low compliance villages) of the CDDs viewed their number and length of distribution period as inadequate. Four (two from each type of village) CDDs complained of inability to effectively distribute drugs, summarise and submit reports. Two health workers from high compliance villages and all LF coordinators complained of insufficient MDA planning period. Furthermore, some participants of seven FGDs reported that the number of CDDs was inadequate while the LF Programme Manager indicated insufficient funding as a challenge to recruitment of additional CDDs. Three-tenths of the patients moreover emphasised the need to increase the number of CDDs.

Two-thirds (10) of the CDDs did not cover all their allocated households. Although the remaining one-third (five) covered all households, they did not make call backs due to time limitations. The majority of all FGD participants felt that the limited duration of MDA was the reason for non-compliance. A male adult participant from one FGD in a high compliance village observed thus:

*“The duration should be increased with special emphasis on the officers in charge of MDA to give about a week’s education to the villagers to ensure that they understand how this disease is transmitted.”*

## Community sensitisation

One-third (four from high and one from a low compliance village) of the CDDs reported that they were supported in record-keeping and community sensitisation by the community members. Three CDDs from high and two from low compliance villages got support through encouragement from health workers.

However, two-thirds (10) of the CDDs did not get support and one-fifth (three) were insulted by community members, with claims that the drugs were for sterilisation. The majority (13) of the CDDs felt that community sensitisation had not been sufficiently conducted. Only two health workers carried out community sensitisation pre- 2008 MDA. One-third of the CDDs from high compliance villages rated local leaders as least supportive for failing to mobilise communities. The LF Programme Manager identified inadequate financial allocation as a hindrance to effective social mobilisation. Only two LF coordinators indicated having supervised drug distribution. The majority (three-fifths) of the opinion leaders and (four-fifths) of LF patients highlighted the importance of community education and mobilisation. Three-tenths of the opinion leaders emphasised the need to empower community and faith-based organisation as well as youth groups for advocacy. One-fifth of the patients highlighted the importance of morbidity control on increased compliance levels.

Some discussants of one-half of the FGDs complained of poor CDD interaction due to poor communication skills, failure to give adequate information about the drugs, leaving drugs behind for absentees, and ‘overdosing’ people. One male youth FGD participant in a high compliance village remarked:

*“But the problem is that people were not educated on the drugs and the CDDs just came and gave out the drugs, they did not explain anything that is why many people did not swallow the drugs.”*

## CDD incentives

All CDDs reported that they received monetary allowances for training attendance and transportation. Only three from high and one from a low compliance village received moral support through recognition and invitation to community health programmes. All CDDs and the majority of the FGD participants stressed the importance of T-Shirts for ease of identification and as a token of appreciation to the CDDs.

## Discussion

The current study showed that CDDs were motivated by a desire to rid their communities of LF, a perception that the process got them recognised and educated about LF, community behaviours and perceptions. Similarly, in Zanzibar where the MDA programme has been successful, the drug distributors had been selected on the basis of their experience in prevention activities and their residence in the community

where the work was carried out.<sup>11</sup> Gyapong et al.<sup>12</sup> emphasised community members' importance in CDD selection as they, community members, understand the role that their members can perform best.

In the current study, the short training duration may have reduced the CDDs motivation and compromised the quality of their services. The recommended duration of training is a full day for CDDs to gain confidence to adequately respond to community members' doubts.<sup>13</sup> In Uganda, the CDDs themselves admitted that they were lacking in knowledge and that the training was too short to have equipped them with the necessary knowledge and skills to conduct health education.<sup>14</sup> Babu et al.<sup>15</sup> indicated that in areas where the training programme lasted as recommended, the levels of compliance were higher.

Incompetence of CDDs due to lack of intensive training in the current study could have caused mistrust among community members. Intensive training on good communication skills, on the disease and its prevention is vital for CDDs acceptance by communities and was highlighted in Sri Lanka.<sup>16</sup> Furthermore, in southwest Ethiopia community members got misled and lost confidence in CDDs if they felt that the CDDs did not have better information than they themselves.<sup>17</sup> Poor compliance among persons who received DEC from volunteers was attributed to the volunteer's poor communication skills.<sup>18</sup>

The CDDs inability to keep records due to unavailability of recording books may have negatively influenced their motivation. The importance of recording forms as the heart of the supply information system and as an audit trail has been highlighted by WHO.<sup>2</sup>

Delays in supplying CDDs with drugs in the current study may have contributed to reduced motivation. This concurs with the study in India<sup>15</sup> where a delay in supplies influenced compliance. Issuing CDDs with insufficient quantities of drugs may have resulted in a slowdown of activities and negative influence on their motivation.

In the current study, insufficient training, inadequate supervision and allocation of CDDs with large numbers of households in limited time could have resulted in a lack of DOT, poor record-keeping and apathy thereby negatively influencing CDDs' motivation. In Kenya,<sup>6</sup> high compliance was attributed to the DOT approach which was recommended to the National LF Elimination Programme. Time pressure may have prevented CDDs from creating rapport with household members, making visits on time and reaching all eligible persons. In Sri Lanka, Weerasooriya et al.<sup>16</sup> recommended that the MDA programme needed increased human reservoir for drug delivery and advocated for a 'Filariasis Week' to a 'Filariasis Day'. Yirga et al.<sup>17</sup> concluded that drug distribution time should last long enough during each treatment round in order to reach non-compliers. Follow-up, treating absent community members and refusals were highlighted challenges influencing distributors and associated with compliance.<sup>19</sup>

The current study revealed evidence of insufficient efforts in community sensitisation and mobilisation in the pre-MDA campaign which could have resulted in mistrust and insults to CDDs. The role of sensitisation seems to have been assigned to local leaders with CDDs being involved only at the distribution time which may have caused difficulty in convincing community members to take the drugs. Integration of knowledge, attitude and perception (KAP) surveys with drug-coverage surveys to prepare for health promotion campaigns has been recommended by WHO.<sup>13</sup> The important role of KAP surveys in helping programmes to adapt health education messages to changes in public knowledge and attitude over time has further been emphasized.<sup>20</sup>

Failure of health workers to supervise the drug distribution was another factor attributable to reduced CDDs' motivation. Haselow et al.<sup>21</sup> emphasized the need for increased and improved supervision by health personnel but acknowledged lack of skills, insufficient logistics and poor motivation as possible hindrances.

In the current study, moral support through recognition may have contributed to increased CDD motivation, and could be associated with compliance. However, lack of incentives such as T-shirts, which has been reported as an additional obstacle to drug distribution,<sup>22</sup> could have negatively influenced the CDDs' motivation. Similar results<sup>17</sup> indicated that some CDDs admitted de-motivation related to interruption of incentives which included T-shirts provided at the beginning of the programme but not in subsequent rounds.

The current study showed that positive peer influence through assistance in drug distribution and community sensitisation contributed to CDDs' motivation. Wamae et al.<sup>6</sup> suggested that provision of bicycles to CDDs for commercial gains to earn an income during 'off delivery periods' could be an innovative way for CDDs to stay motivated and remain in the programme for its life-span.

This study has identified critical factors influencing CDDs' motivation in MDA for LF elimination. The recommended training duration should be adhered to; record-keeping books and adequate drug supplies made available before distribution time. A sufficient number of CDDs should be trained and communities well sensitised on MDA. There is a need to provide CDDs' with T-shirts, and to supervise and increase drug distribution days. Communities should be sufficiently involved in selecting and giving CDDs moral support.

## Acknowledgment

This study, which is part of PhD training, received financial support from the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) ID No. A61106, and The African Doctoral Dissertation Research Fellowship (ADDRF) through The African Population and Health Research Centre (APHRC) in partnership with International Development Research Centre (IDRC) and the Ford Foundation.



The authors are particularly grateful to Dunstan Mukoko of the Division of Vector Borne and Neglected Tropical Diseases Control Ministry of Public Health and Sanitation for support and provision of LF elimination programme data. The members of the study communities are also thanked for their participation in the study. We wish to also appreciate the Malindi and Kwale District staff as well as the Provincial Director of Public Health and Sanitation for embracing the study. This study has been published with the permission of the Director, KEMRI.

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