

Community-directed interventions strategy enhances efficient and effective integration of health care delivery and development activities in rural disadvantaged communities of Uganda

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Summary

The community-directed interventions (CDI) strategy achieved a desired coverage of the ultimate treatment goal (UTG) of at least 90% with ivermectin distribution for onchocerciasis control, and filled the gap between the health care services and the communities. However, it was not clear how its primary actors – the community-directed health workers (CDHW) and community-directed health supervisors (CDHS) – would perform if they were given more responsibilities for other health and development activities within their communities. A total of 429 of 636 (67.5%) of the CDHWs who were involved in other health and development activities performed better than those who were involved only in ivermectin distribution, with a drop-out rate of 2.3%. A total of 467 of 864 (54.1%) of CDHSs who were involved in other health and development activities also maintained the desired level of performance. They facilitated updating of household registers ($P < 0.05$), trained and supervised CDHWs, and educated community members about onchocerciasis control ($P < 0.001$). Their drop-out rate was 2.6%. The study showed that the majority of those who dropped out had not been selected by their community members. Therefore, CDI strategy promoted integration of health and development activities with a high potential for sustainability.

keywords community-directed interventions, coverage, development, drop-out rate, integration monetary incentives, sustainability

Introduction

The community-directed intervention (CDI) strategy is an approach whereby community members collectively: (i) discuss a health or developmental challenge and the possible interventions on the basis of information provided to them by initiators (internal and/or external) or experts; (ii) design the approach to implement the interventions in the community; (iii) identify the resources to accomplish the task; and (iv) plan how, when, where and by whom it will be implemented. Meanwhile, the community-directed implementers execute the intervention with support from community members, who monitor the implementation process, discuss the results of the monitoring and adjust the implementation strategy accordingly.

During the implementation process, other partners such as non-governmental organizations provide technical and material support when and where appropriate. In the CDI strategy, all partners are committed to the empowerment process, not to dominate it, but rather to contribute according to their roles and responsibilities. In many

instances, the phrase ‘community-directed interventions strategy’ is used in the same way as ‘community-based strategy’. However, community-based strategy describes a very wide range of approaches, ranging from full community-based prioritization, planning and implementation of interventions, to externally run interventions that have no direct community involvement and yet are still implemented at the community level. CDI strategy in health care delivery was adapted to replace the broader term ‘community-based strategy’ in order to define more focused processes aimed at maximizing community involvement both in decision-making and in taking responsibility for the betterment of their own health (Katarwa *et al.* 2000a).

Implementing the CDI strategy in distributing ivermectin for the control of onchocerciasis in Uganda has been effective in achieving the desired coverage with a high potential for sustaining it over many years. One aspect of CDI strategy in the control of onchocerciasis through ivermectin distribution is the appreciation and use of socio-cultural aspects of the communities, such as the

social structures, legal system, resource mobilization and sharing systems (Katarwa *et al.* 2000b). Selection of as many community-directed health workers (CDHWs) as practical is vital for integrating health programmes within CDI strategy (Katarwa *et al.* 2001). A CDHW is defined as a person from the community who has been selected, by his or her own kinsmen and neighbours in a general meeting, to provide services within the kinship zone where he or she is a permanent resident. Having both female and male CDHWs at the kinship level ensured prompt, equitable and quality health care delivery (Katarwa *et al.* 2002) for all categories of community members.

Health care delivery services in Uganda

Health care delivery services in Uganda (Figure 1) were decentralized to the district level (level 5) where primary strategic and budgetary decisions are made. Each district is now divided into health sub-districts (level 4). At this level is a hospital equipped with laboratory facilities, an operating theatre and other specialized services. Below it is a level 3 health facility, which is commonly based at the sub-county, followed by a level 2 health facility at the parish level. While almost all sub-counties have health facilities, a significant number of parishes in the country have none. The lowest health facilities are supposed to be linked with family and community members through village health committees at the village level. The health sector in Uganda has endorsed CDI strategy, advocated for integration of health care delivery and promoted gender-specific strategies for enhanced involvement of women. In this paper, successful integration is considered as effective and efficient provision of different health care and development services at the community level by the existing health care delivering system using the CDI strategy.

Community-directed health workers

The original study by the African Programme for Onchocerciasis Control (APOC) first identified community-directed distributors (CDDs) as being instrumental in giving health education to community members and in distributing ivermectin. The CDDs also managed side-effects, recorded the numbers of people treated and of tablets used, and then submitted reports to the front-line district health workers (WHO/APOC Report 1996). APOC recommended that there should be one CDD per 250 persons. This is about one to two CDD per community. Our experience was that these CDDs would treat one section of the community free of charge, but demanded remuneration from other sections as a condition for treatment (Katarwa *et al.* 2000a). Therefore, it was

decided that the policy should be to allow every self-identified kinship or neighbourhood group to select as many CDDs as practical and train them to work within their respective kinship zones. This strategy helped to eliminate demands for monetary incentives as a condition for the provision of services, and it resulted in the achievement, and maintenance of a desired coverage (at least 90%) of the ultimate treatment goal (UTG). During implementation of this policy, it was proven that health workers were not able to train and supervise a large number of CDDs who had been selected by the community members. Later, it was found that these CDDs were involved in many different health and development activities as well as ivermectin distribution for onchocerciasis control, hence the term 'community-directed health workers'. CDHWs are supposed to distribute ivermectin to their kinsmen; provide any other health and development services, as agreed by their kinsmen in their kinship or neighbourhood meeting.

Community-directed health supervisors

Community-directed health supervisors (CDHSs) are elite members of the community, elected by the members of the community. Their functions are to train, supervise and mentor CDHWs, health-educate their community members, ensure that community data such as census and treatment figures are up-to-date, act as disease surveillance persons at the community level, be involved in multi-disease prevention and control, be part of the community health team, and link health workers at the front-line health units with their respective communities. Health workers at the front-line health units were found to be out of touch with individual community members as <5% of the families in a sample of five of 11 districts claimed that health workers had visited them during 2001. Most health workers claimed to have been busy at the health units with 60–140 patients per day, but many had low morale because of their poor remuneration. The purpose of having at least two CDHSs (one male and one female) per community was to ensure accessibility, equity and trust of health care services, as well as gender-sensitivity in the context of public health matters. These CDHSs would then train and supervise a large number of CDHWs and health-educate community members at the kinship level. This was thought to enhance health promotion and create social capital for sustainability of community-based health programmes. The success of the CDTI approach has drawn the attention of other disease control and development programmes such as home-based management of malaria, nutrition, water protection, Guinea worm eradication, health policy and decision-makers (Homeida *et al.* 2002).

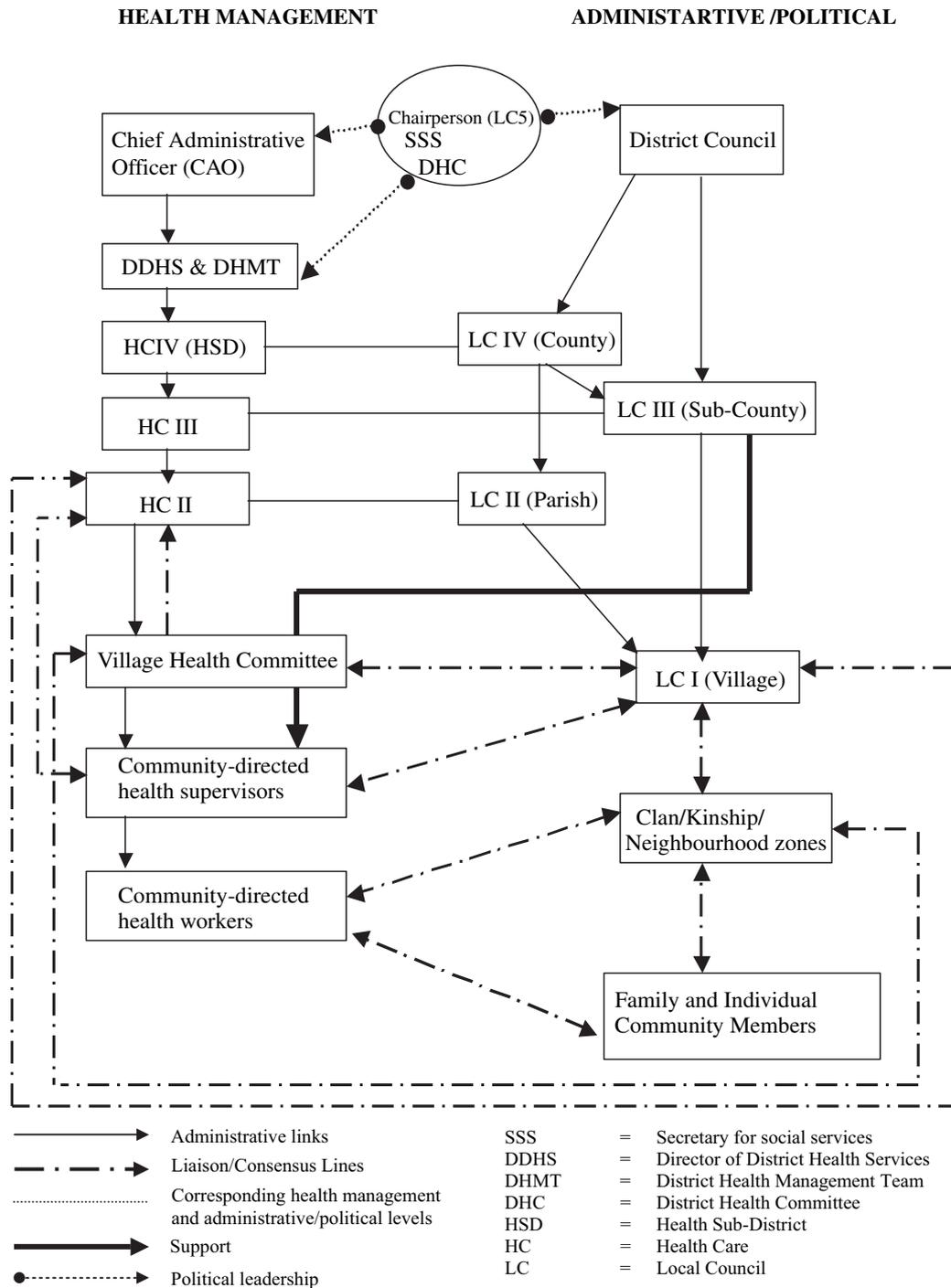


Figure 1 District structure for health care delivery in Uganda.

However, it was not clear if CDHWs and CDHSs when involved in other health and development activities could continue distributing ivermectin effectively and

efficiently; whether increased responsibilities would result in a higher drop-out rate; and whether they would demand monetary incentives as a condition for services

provided. Therefore, the objectives of the present study were to investigate: what effect involving CDHWs and CDHSs in health care and development activities other than onchocerciasis might have on their performance, support and drop-out rate and whether promotion of gender issues would enhance or hinder performance of CDHWs or CDHSs.

Subjects and methods

Study areas

The study districts were those receiving support from The Carter Center, the Uganda Ministry of Health and APOC. They included the Districts of Adjumani, Apac, Gulu, Kabale, Kanungu, Kasese, Kisoro, Mbale, Moyo, Nebbi and Sironko.

Survey of sample communities

Of the 11 districts, only five [Adjumani (218 communities), Kasese (131 communities), Kisoro (31 communities), Mbale (580 communities), and Nebbi (670 communities)] were randomly selected, using a number table, for face-to-face interviews. The communities to be studied were also selected using a random number table. For a relatively homogeneous population of at least 50 000 people in each onchocerciasis-endemic district, interviewing 245 households is sufficient to give a 95% confidence level (Sallant & Dillman 1994). In order to get 245 households for interviews, 10 households were randomly selected from each of the 25 randomly selected communities using a random number table. For Kisoro District, with a population <50 000 living in onchocerciasis-endemic areas, 30% of the communities were randomly selected. There were at least five CDHWs per randomly selected community, and in all at least 625 CDHWs were interviewed. In addition, 864 CDHSs from at least 30% of the communities from selected districts of Adjumani, Kasese, Kisoro, Mbale and Nebbi were interviewed.

Face-to-face interviews

For households heads, the questions were intended to solicit information on whether they had: (a) been health-educated; (b) participated in the selection of CDHWs and CDHSs; (c) decided on the location of the treatment centre; (d) helped in mobilizing other community members; (e) supported the CDHWs; (f) received ivermectin; (g) been satisfied with community-directed treatment activities; and (h) decided to receive ivermectin the following year. This

information was used to cross-check responses from CDHWs and CDHSs.

The questions put to CDHWs solicited information on: (a) gender; (b) the community/kinship zone where the CDHWs worked; (c) the location of the CDHWs residence; (d) who selected them; (e) whether the CDHW was trained and by whom; (f) whether the CDHW distributed ivermectin; (g) whether the CDHW health-educated the community members; (h) what was the CDHW's involvement in other health and development activities; (i) the period taken to distribute ivermectin; (j) involvement in other CDTI activities; (k) the performance, as demonstrated by the treatment coverage, that each CDHW had achieved; (l) whether the CDHW was supervised and by whom; (m) the support received from the community; and (n) whether the CDHW intended to distribute ivermectin the following year.

For the CDHSs, the questions sought to gain information on: (a) gender; (b) the community where each CDHS worked; (c) the community in which the CDHS resided; (d) who selected CDHS; (e) whether the CDHS (i) was trained and by whom; (ii) trained the CDHWs; (iii) health-educated the community members; (iv) participated in other health and development activities; (v) supervised CDHWs; and (vi) would continue distributing ivermectin the following year.

Data analysis

All quantitative data were checked, coded, entered into the computer and analysed using an EPI-INFO package (Melissa & Miner 1997). During analysis, the household head, CDHW and CDHS information were analysed separately. The household heads' information was used to validate the performance of CDHWs and CDHSs. Analysis of data on CDHWs and CDHSs was performed to obtain information on their involvement in CDTI activities; validate their performance through information obtained from households; assess the differences between CDHWs who were involved in health and development activities, and those who were involved only in CDTI activities; and investigate the effect, on their performance, of involving them in two or more health and development activities in addition to CDTI activities. The performances of male and female CDHWs and CDHSs were also compared. The chi-square test for statistical significance (with Yates' correction, where appropriate) was used to assess the differences in the numbers of interviewees in each group answering satisfactorily 'Yes' or 'No' to the questions mentioned above (Kuzma 1992). The relationships identified were compared with observations within the communities.

Results

Responses from 647 CDHWs

Most [608 (94%)] of the CDHWs in randomly selected communities distributed ivermectin during 2002; 481 (74.3%) did so within a distance of 1 km, and 632 (97.7%) had been trained. Of those who distributed ivermectin 559 (86.4%) were married and 299 (46.1%) were females. Individual community members within their zones had selected 544 (84.1%) of the CDHWs. Of those who had been selected at the community centre, 602 (93.1%) were selected from within a distance of 1 km; 642 (99.2%) lived within the zones where they distributed ivermectin, and 447 (69.1%) had been distributing ivermectin for at least 2 years. Of those who distributed ivermectin, 402 (62.1%) completed their tasks within 1 week, 475 (73.4%) had treated their close relatives, 642 (99.1%) had been supervised by CDHSs during distribution, and 429 (67.5%) were also involved in other health and development activities. These included water and sanitation; community-based health care activities; immunization; family planning; HIV/AIDS control; traditional birth attendants; tuberculosis control; and malaria fever control (Figure 2).

Of the 429 CDHWs involved in other health and development activities, 256 (59.7%) had undertaken

more than two activities. A total of 380 (88.6%) of the CDHWs had given health education to their community members before treatment and 407 (95%) said that they would continue distributing ivermectin in the following years. The reasons given for not continuing to work as CDHWs were mainly getting married outside their zones and inability to predict the future, as they could be sick or away on business during the distribution period. Only 15 of 647 (2.3%) CDHWs thought that the work was quite hard and were not willing to continue because of lack of monetary incentives. It was noted that some of those who were not willing to continue had worked outside their kinship zones, and that the drop-out rate was <2%.

Confirmation of CDHWs performance from household heads

Mean coverage, expressed as a percentage of the UTG was generally good: (a) Adjumani District, 86%; (b) Kisoro and Nebbi Districts, 93%; (c) Kasese District, 96%; and (d) Mbale District, 97%. Overall mean coverage of the UTG in the randomly sampled communities was 93% (1090) compared with the actual UTG of 97.6% from community household registers. Of 1013 that were treated, 96.9% and 78% persons lived within a distance of 1 km, and 0.5 km

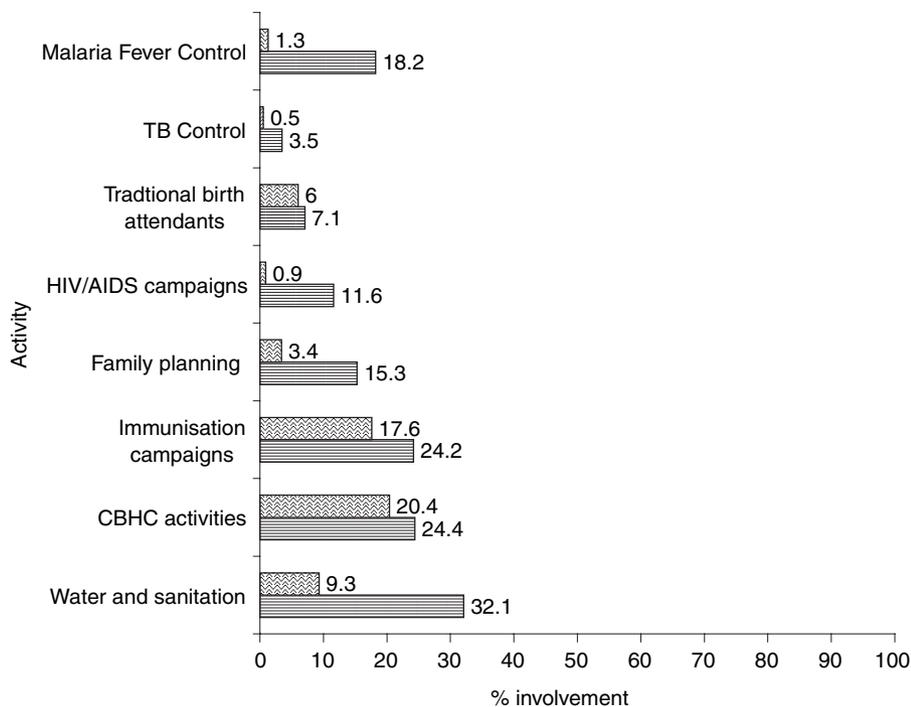


Figure 2 Involvement of CDHWs ($n = 429$) and CDHSs ($n = 467$) in health and development activities during 2002. ▨ Percentage of CDHSs involved in a given health activity, ▨ percentage of CDHWs involved in a given health activity.

of the treatment centre respectively. Of the community members 58.6% (638/1089) took part in the decision on the location of the treatment centre; 55.8% (608/1089) selected CDHWs; 55.8% (608/1089) were involved in mobilization and treatment activities; 68.6% (746/1088) attended health education sessions; 93.6% (942/1006) were satisfied with the treatment services provided; and 99.3% (1080/1088) were willing to receive ivermectin the following year. Although 41.5% (452/1089) claimed to have supported their CDHWs in kind during CDTI activities, <1% (11/1090) stated that they had contributed monetary incentives (Table 1).

Involvement of CDHWs in other health or development activities

Two-thirds [67.5% (429/636)] of the CDHWs were involved in other health and development activities. A significant number of them were likely to have been selected from a community centre within a distance of 0.5 km from their home ($P < 0.05$); distributing ivermectin for at least 2 years ($P < 0.001$); supervised by the CDHSs ($P < 0.05$); and living and serving in the same community ($P < 0.05$). Therefore, a significant number of CDHWs who were involved in other health and development activities had been selected by their kinsmen, and were

experienced to the extent that they had been serving their communities for at least 2 years. These CDHWs were also supervised by the CDHSs (Table 2).

Those CDHWs who were involved in at least two health and development activities were likely to have been selected by their community members ($P < 0.001$); distributed ivermectin during 2002 ($P < 0.05$); achieved a desired UTG coverage of at least 90% ($P < 0.05$); taken more than a week to distribute ivermectin and other drugs when compared with those who were only involved in CDTI activities ($P < 0.001$); and treated more persons who were not their relatives ($0.01 < P < 0.05$).

Further analysis showed that male CDHWs (30.4%; 106/348) were more likely than females (23.2%; 69/299) to help in distributing ivermectin or to get involved in other health and development activities outside their community/kinship zones ($P < 0.05$). Two-thirds (67.1%; 201/299) of the female CDHWs who were involved in CDTI as well as in other health and development activities had treated at least 90% of their UTG within a period of week when compared with 62.1% (348) of male CDHWs ($P < 0.05$).

Responses of CDHSs

Responses from 868 CDHSs interviewed revealed that 26% were females, 87.9% were married, and 89.4%,

Table 1 Comparison of CDHWs who answered 'Yes' to involvement in other health and development activities [$n = 429$ (67.5%)] and those who answered 'No' [$n = 207$ (32.5%)] during 2002

Factor	Involved in CDTI and other development activities			Involved in only CDTI activities			P-value for the chi-square test of association
	Yes (%)	No (%)	Total	Yes (%)	No (%)	Total	
1. Were you selected from a community centre within a distance of 0.5 km of his/her home?	238 (65.4)	126 (34.6)	364	99 (55.6)	79 (44.4)	178	<0.05
2. Have you been distributing ivermectin for at least 2 years?	326 (76.3)	101 (23.7)	427	113 (54.9)	93 (45.1)	206	<0.001
3. Did you distribute ivermectin during 2002?	410 (95.6)	19 (4.4)	429	190 (91.8)	17 (8.2)	207	NS
4. Were the majority of people you treated relatives?	310 (75.6)	100 (24.4)	410	131 (68.9)	59 (31.1)	190	<0.05
5. Did you health-educate community members before treatment?	385 (89.7)	44 (10.3)	429	179 (86.5)	28 (13.5)	207	NS
6. Were you supervised by the CDHSs during distribution?	381 (92.9)	29 (7.1)	410	167 (87.9)	23 (12.1)	190	<0.05
7. Does the CDHSs live in this community?	280 (65.3)	149 (34.7)	429	151 (73.7)	54 (26.3)	205	<0.05
8. Will continue distributing ivermectin the following year?	410 (95.8)	18 (4.2)	428	194 (94.2)	12 (5.8)	206	NS

Table 2 Comparison of CDHWs who answered 'Yes' to involvement in at least two health and development activities [$n = 256$ (59.8%)] and those who answered 'No' [$n = 172$ (40.2%)] during 2002

Factor	Was involved in at least two activities			Was involved in only one CDTI activity			P-value for the chi-square test of association
	Yes (%)	No (%)	Total	Yes (%)	No (%)	Total	
1. Were you selected by individual community members and leaders in a general meeting at the zonal level?	229 (93.1)	17 (6.9)	246	131 (76.2)	41 (23.8)	172	<0.001
2. Were you selected from a community centre within a distance of 0.5 km of his/her home?	149 (65.6)	78 (34.4)	227	88 (64.7)	48 (35.3)	136	NS
3. Did you distribute ivermectin during 2002?	249 (97.3)	7 (2.7)	256	160 (93)	12 (7)	172	<0.05
4. Did you achieve a coverage of at least 90%?	141 (55.1)	115 (44.9)	256	77 (44.8)	95 (55.2)	172	<0.05
5. Did you complete treatment within a week?	133 (53.4)	116 (46.6)	249	117 (73.1)	43 (26.9)	160	<0.001
6. Were the majority of people treated relatives?	176 (70.7)	73 (29.3)	249	133 (83.1)	27 (16.9)	160	0.01 < P < 0.05
7. Does your CDHSs live within this community?	160 (62.5)	96 (37.5)	256	119 (69.2)	53 (30.8)	172	NS

resided in the communities they supervised; 75.9% had been involved in CDTI activities for at least 2 years; almost all had supervised the CDHWs, and 58.7% of them had supervised at least three CDHWs per kinship zone; 77.6% had supervised CDHWs at least twice during ivermectin distribution; 90% were involved in updating registers; and 69.4% distributed ivermectin to their communities; 99.3% of the CDHSs had health-educated their community members before mass treatment with ivermectin; 90.9% (789/868) of them said that they would continue serving their communities during the following year; >70% (55/79) who said they would not continue, stated that they were not sure where they would be the following year. However,

they were happy with the activities in which they were involved and would be glad to continue if they were still within their communities the following year. Twenty-four CDHSs described the work as difficult and complained that they had not been compensated financially. Therefore, the actual drop-out rate was about 2.8% (24/868). Interestingly, this category was involved in CDTI activities outside their community of residence. About 54% (864) CDHSs were also involved in water and sanitation; community-based health care activities; immunization; family planning; HIV/AIDS control; traditional birth attendance; tuberculosis control; and malaria fever control (Figure 2; Table 3).

Table 3 Comparison of responses of 864 CDHSs who were involved in other health and development activities and those who were only involved in CDTI activities during 2002

Factor	Involved in other health or development activities [$n = 467$ (54.1%)]			Involved in only CDTI activities [$n = 397$ (45.9%)]			P-value for the chi-square test of association
	Yes (%)	No (%)	Total	Yes (%)	No (%)	Total	
1. Were you selected by community members?	297 (63.9)	168 (36.1)	465	298 (75)	99 (25)	397	<0.001
2. Do you reside in community you supervised?	405 (89.9)	61 (13.1)	466	366 (92.2)	31 (7.8)	397	NS
3. Have you been doing CDTI work for at least 2 years?	301 (64.5)	166 (35.5)	467	165 (41.6)	232 (58.4)	397	<0.001
4. Did you health educate community members on onchocerciasis and its control before treatment during 2002?	450 (98.5)	7 (1.5)	457	378 (98.2)	7 (1.8)	385	NS
5. Did you supervise CDHWs during 2002 ivermectin distribution?	459 (100)	0	459	387 (100)	0	387	-
6. Were you involved in updating registers before treatment?	438 (94.8)	24 (5.2)	462	338 (86.2)	54 (13.8)	392	<0.001
7. Were you supported during CDTI activities?	422 (91.7)	38 (8.3)	460	378 (95.5)	18 (4.5)	396	NS
8. Did you get monetary incentives	85 (18.7)	370 (81.3)	455	106 (27.3)	282 (72.7)	383	<0.05
9. Did you bring ivermectin to your community?	334 (73.1)	123 (26.9)	457	248 (64.8)	135 (35.2)	383	<0.05
10. Will continue doing CDTI work in the coming year?	435 (93.3)	31 (6.7)	466	349 (87.9)	48 (12.1)	397	<0.05

Those who were involved only in CDTI activities were likely to have been selected by the community members ($P < 0.001$) and provided with monetary incentives ($P < 0.05$). The percentage of CDHs involved only in CDTI activities and who were given some incentives was only 12.3%. On the contrary, those who were involved in CDTI, as well as in other health and development activities, were likely to have been doing CDTI work for at least 2 years ($P < 0.001$), have been bringing ivermectin to their communities ($P < 0.05$) and continue doing CDTI work the following year ($P < 0.05$). It was noted that, although at least 91% claimed to have been supported by their communities, most of the support was in form of a helping hand or in kind support in accomplishing a number of tasks.

Discussion

A significant number of CDHWs who were involved in other health and development activities had achieved at least 90% treatment coverage of UTG when compared with those that were involved only in CDTI activities. In a similar study sponsored by UNICEF/UNDP/World Bank/WHO-TDR, this was the case (Okeibunor *et al.* 2004). However, the desired coverage was achieved over a period of more than a week while a higher percentage of those involved in CDTI activities only, achieved it within a week. The communities tended to add on responsibilities to CDHWs who had been involved in CDTI activities for at least 2 years. This implies that experience may have been the main criterion for adding on extra responsibilities to the CDHWs by their community members. The study found that adding on more responsibilities to CDHWs and CDHs enhanced their performance, did not increase the low attrition rate of <2% (Katarwa & Richards 2001), and did not change the support they were getting from their communities. The availability of trained CDHs ensured an adequate number of trained CDHWs in a community, their supervision, and the community members received health education conveniently within their kinship zones. The services were equitably provided, which further enhanced community members' trust in the CDHWs and CDHs. This resulted in community members supporting and recommending them for more responsibilities.

Role played by the local government-employed health workers

The local government health workers at various levels participated in facilitating communities to select their own CDHs, whom they later trained, mentored and supervised. It is from this category of community workers that the missing link between the front-line health units and

communities was filled. However, the study showed that some front-line health workers tended to deploy male CDHWs to serve in other health activities outside their own communities. This was the main reason why these CDHWs took more than a week to achieve at least 90% coverage of UTG in their communities.

More female than male CDHWs who were involved in other health and development activities achieved at least 90% of their UTG within a week. They were likely to be more reliable than male CDHWs as they tended to serve only within their kinship/neighbourhood zones as per the dictates of the existing social legal systems. For example, most women are married into the kinships where they reside and can only maintain their integrity and marriage by staying within the bounds of their husbands' and in-laws' 'eyes'. Working outside their individual kinship/neighbourhood zones could trigger off rumours that are not easy to refute, especially when sexually related allegations are involved. Once the women operate within their kinship/neighbourhood zones, they enjoyed freedom to criticize, and even to be assertive when things are done in a way they dislike (Haviland 1997; Keesing & Strathern 1998). Working mainly within the confines of their kinship/neighbourhood zones, women enjoyed more support and acceptance (Katarwa *et al.* 2001, 2002). They also achieved a desired coverage within a week as they tended to share out work more equitably; trace and treat persons who were temporarily ineligible, such as pregnant mothers or children <5 years of age and keep medicine for persons unavailable during the main distribution days and treat them when they become available.

Mobilization strategy at the community level

Mobilization of community members requires knowledge and use of social structures and their legal systems. Most health delivery systems tend to follow only the administrative structure, which often serves but a few influential community members, thus denying services to the majority. In Uganda, the CDTI programme allows community members to demarcate their communities using the kinship system. What was originally known as one administrative community often turned out to have two or more kinship/neighbourhood zones as defined by the community members (Katarwa *et al.* 2000a). This involved continuous contact and dialogue with communities. There was a deliberate effort in training so that health workers (both government and non-governmental organization employees) understand and appreciate the community members' roles and responsibilities that improve their own health. This approach was enhanced by health education that went beyond signs and symptoms of diseases and their control

and prevention. It encouraged identification of the existing traditional structures, such as kinship, their roles and responsibilities in disease control and prevention. Administrative and health care delivery systems trained and health-educated community members that health care was a partnership venture that the government or donor(s) alone could not sustain. Community members were informed of what the government and the donor could do, and could not. Then the community members were given a chance to discuss and take decisions on how they intended to fill gaps left by the local health care system and the donors.

Community selection of CDHWs and CDHSs

There were at least 12 trained CDHWs and one CDHSs per community of about 250 to 300 persons during 2002. The training was cheaper and more convenient as it was carried out within the community. The result was that many community-selected CDHWs were trained, and community members were able to deploy CDHWs in any disease control and development activities within the community without over-burdening individual CDHWs. The CDHWs working within their kinship zones, served few people, most of whom were relatives or neighbours. They completed their assignments within a short time during the agreed period, obtained maximum support, and quickly went back to their normal chores. All this was achieved without monetary incentives. That is why the attrition rate was very low, as most CDHWs were willing to continue serving their relatives and neighbours effectively without demanding monetary incentives as a condition for their services (Katarbarwa & Richards 2001).

The International Conference on Primary Health Care, Alma-Ata, USSR, in September 1978 urged prompt action by all governments, all health and development workers, and the world community to protect and promote the health of all people in the world. It stressed the importance of promoting their participation, as individuals or collectively, in planning and implementing their health care (WHO Report 1978). Unfortunately, a number of key public health programmes have been formulated and implemented without involvement of the community members. This has given rise to inequity in health care delivery and sparked off a debate on whether vertical health care programmes should be eliminated or not. Some think that elimination of systematic differences in one or more aspects of health across socially, economically, demographically or geographically defined population groups can be achieved through horizontal health care programmes, while others disagree. Yet both approaches are necessary, as vertical health care programmes seek to achieve equity with preference for those with greater health

needs, while horizontal programmes achieve treatment for equivalent needs (Starfield 2001). Within each type of health care delivery approach, there are various socio-cultural, economical, and demographical levels. Hence vertical equity can be achieved for groups having different starting points, and thus different treatments (McIntyre & Gilson 2000). This further complicates the situation for health care policy decision-makers where health care delivery systems are under-staffed and -funded. This may explain why a number of public health specialists believe that investing heavily in controlling one or a few diseases, or setting up vertical parallel systems is inefficient and unsustainable, in any environment where there are numerous major health and development challenges.

However, the CDTI programme has shown that resources mobilised for one health programme could promote integration of health care delivery without overburdening community-selected and -directed health workers. This study also demonstrated that it is possible to achieve horizontal and vertical equity in rural and disadvantaged communities without compromising the accessibility, equity, quality and trust of the services being delivered.

In this study, the critical element for integration was the community-directed interventions (CDI) strategy. It facilitated use of the resources for onchocerciasis control to build a structure for integrated approach to health care and development without a negatively affecting the performance of CDHWs and CDHSs, its primary actors in relation to CDTI activities. The missing link between the front-line health facilities and the community level in the health care system was eliminated, and communities started taking on more responsibilities for their health and development activities.

Conclusions and recommendations

Achievement of a desired coverage over a period of more than a week requires that CDHWs only work within their kinship or neighbourhood areas. Therefore, health workers should be advised not to engage them outside their communities as this affects their support and performance. Integration of health and development activities enhances performance and confidence of community-selected and -directed health workers, and therefore should be encouraged. However, the success of this requires utilization of community structures and their social-legal systems.

Involvement of community members in the health of their community is critical if 'health for all' is to be achieved. However, integration of health programmes along with other social development activities should be

the ultimate objective of all governments, donors, public health experts and programme implementers. Although integration is now a buzzword, knowledge of how to define and monitor its progress, identify the factors, that influence it on an annual basis, as well as knowledge of the social context in which it happens, requires more studies. Our study shows that horizontal or vertical programmes might not be the obstacles to integration of health care. Lack of an effective health care strategy may be the problem. In our case, CDI strategy promoted community involvement, and integration of health care and developmental activities in an environment where both vertical and horizontal programmes existed efficiently and effectively.

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