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Another Look at Community-Directed Treatment (ComDT) in Cameroon: A Quality Challenge to Health System Development

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Introduction

Onchocerciasis is the world's second leading infectious cause of blindness with an estimated 123 million people under risk, and about 18 million people in the world suffering a grave burden imposed by the disease (WHO 1997a). In Africa, some 17.5 million people are infected with *Onchocerca volvulus* (WHO Technical Report Series no.852). It is estimated that more than 6 million people are suffering from *Onchocerca* skin lesions and severe itching (Remme, Murray, and Lopez 1990).

The vector *Onchocerca volvulus* produces millions of microfilariae worms which migrate to the skin and the eyes of the human host, causing severe itching and pigmentation. The most severe manifestations of onchocerciasis are irreversible: ocular lesions of both the anterior and posterior segments of the eye, resulting in impaired vision and ultimately total blindness. In Africa, it is one of the leading causes of visual impairment and blindness. Rarely life threatening, but causing chronic suffering and severe disability, onchocerciasis constitutes a serious obstacle to socio-economic development (WHO 1996).

Mass-treatment of onchocerciasis is carried out in meso- and hyper-endemic areas once a year, and in hypo-endemic areas, treatment is clinic-based. The target population is persons of five years and above, with the exception of seriously sick persons, pregnant women, nursing mothers whose babies are aged below eight days, and very old persons.

The process of Community-Directed Treatment (ComDT) with Ivermectin (CDTI), has been adopted for onchocerciasis control in some places of Africa. A multi-country study (WHO 2002) conducted in some of the endemic countries has demonstrated that Community-Directed Treatment (ComDT) is an effective

strategy for drug distribution. Those communities are deeply involved in their own health care on a large scale. An assessment by the African Programme for Onchocerciasis Control (APOC 2000) showed that ComDT is effective also for other health and development activities like distribution of Vitamin A, Malaria control, Guinea worm control, and Sanitation. Despite the success, several questions remain unanswered about community and health system interaction for sustained coverage of Ivermectin distribution (WHO 2002a).

Ivermectin distributors, the Community Directed Distributors (CDD), are supposed to be members of their community chosen by the community through a democratic process, trained to distribute Ivermectin and supervised by health services staff. Ivermectin is considered safe enough to be administered by non-health personnel.

Treatment coverage varies between contexts where ComDT has been tried. The mean reported coverage over different ongoing projects is 70 percent. Problems in the selection of CDDs, inadequate supervision by health staff and limited community participation in decision making are common obstacles. The following problems are common to all project sites, these range from poor selection of CDDs, inadequate supervision by health staff to limited community participation in decision making (APOC Technical Report 2002). The urgency of research on ComDT is underscored by the fact that advocates of ComDT want to also use it for other community-based interventions.

This paper reports on a study of ComDT Ivermectin treatment in Cameroon. More specifically we give results on coverage and the views of the CDDs, the health personnel and the community on the ComDT of Ivermectin. The study is an exploratory single case-embedded design, seeking to understand the factors influencing the effectiveness of community-based approaches to drug distribution, in this case ComDT Ivermectin treatment.

Methods

The study was conducted in the south western part of Cameroon where the NGO Sight Savers International (SSI) currently has a Community-Directed Ivermectin Treatment (CDTI) programme. The South West Province lies between 5°20 and 4° N and 8°45 and 9°45 E. The study area includes the health districts of Muyuka, Kumba, and Konye. The areas were purposely selected for this study because they were among the meso- and hyper-endemic communities. Two of them are hyper- and one meso-endemic, thus meeting the criteria for mass treatment with Ivermectin. The study area has a very rich network of drainage systems, most of which flow from high altitude and are interrupted by numerous cascades, rapids, and waterfalls. These streams provide sites for *Simulium* vectors, which can be found at high altitude in the area.

A traditional chief heads each community, and links the communities and the administration. However, the influence of the chieftaincies over the communities

varies from one ethnic group to the other. In some communities the people are better organised around the administrative authorities.

Several channels of communication are used. Each community has a town crier whose role is to transmit messages in the local languages to the community. Churches and 'Njangi houses' are also commonly used for disseminating information. Other traditional channels include the talking drum, and flute.

For this study information was obtained from the study population which consisted of different actors involved in the process of ComDT with Ivermectin at the community level. These include the CDDs, the health facility staff, and the community members and their leaders. At the Local Government Area/District level, the heads of the other health and developmental activities operating within the study communities were also studied. The team that conducted the study comprised of a social epidemiologist, a medical doctor, an anthropologist, a communicator, a bio-statistician (part-time) and six interviewers.

The interviewers were under-graduate students of the Department of Sociology and Anthropology at the University of Buea. Training was carried out for two weeks on the techniques of using quantitative and qualitative instruments for data collection. Confidentiality protection was guaranteed by demanding and receiving oral reports from all CDDs, households, community leaders and health workers to insure data quality before interviews.

Quantitative Data Collection

Forty communities within which at least two CDDs were found were randomly selected for data collection. In each community, two CDDs who covered a minimum of fifteen households were selected for surveys - hence a total of eighty CDDs, seventy-five male and five female, who met these criteria, were interviewed. A semi-structured questionnaire was administered to each CDD to collect information on the different health and development activities in which he/she was involved, how and when they got involved, their motivation, the number of days spent on each activity, similarities to the other activities in their work as CDDs, and how their involvement in the other H&D activities affect their work as CDDs.

A total of 1200 households in which the eighty CDDs worked were surveyed to estimate for household treatment coverage, using a pre-tested standard household survey form. Fifteen households per CDD were used to collect information on sex, age, treatment coverage, period of treatment, treatment effect and side-effects. Information on actual coverage was obtained from 1185 households with 5812 individuals, consisting of 2919 (50.2 percent) males and 2893 (49.8 percent) females.

Qualitative Data Collection

Forty focus group discussions (FGDs), one per community were conducted; twenty male FGDs and twenty female FGDs. Each FGDs ranged from eight to

twelve persons. A FGD guide was used to direct the moderator, note-taker and observer during the discussions.

Forty in-depth interviews were conducted with each community leader using an in-depth interview guide. In-depth interviews were conducted with all nine people (eight nurses and one DMO) from health facility staffs that supervise the CDDs in the study communities. An in-depth interview guide for health staff was used to guide the interviewers.

Quantitative Data Analysis

EPI-info was used for entering data from the household surveys and CDD surveys and for the questionnaire's descriptive analysis. For more detailed analysis, SPSS was used to examine variation and correlations.

Qualitative Data Analysis

Data were transcribed from tapes to records. MSWord was used for entry and transfer to text files. Textbase-Beta was used for content analysis.

Results

Quantitative Results

Two questions in the household survey give estimates of the proportion of persons that report they received tablets and those that report they swallowed the tablets. The overall estimates for persons five years and older were 73.5 percent and 72.6 percent (14 percent of the persons in the household survey were under five). Among those that reported tablets swallowed, 46.3 percent reported side effects and 3.5 percent reported having taken any health care action. Table 1 shows the detailed estimates by age and sex. Both sexes report lower coverage in the age groups 15–34 years. Children and older people have higher frequencies of persons that received and swallowed tablets. Women have generally lower coverage. The proportion having swallowed tablets was about one percent lower than the proportion that received tablets quite systematically. Women more often reported side effects than men and also sought health care more. Both these proportions were larger for the older groups.

There is a large variation between CDD areas and between households within these areas. The coverage estimated from reported numbers in the CDDs questionnaire is considerably lower, less than 50 percent. No correlations were found between the coverage estimated from the household survey and the information from the CDDs. We did not find any correlation between CDD age, sex and educational level, time spent on CDTI, involvement in other activities and motivation. An attempt to use a multiple regression model gave the result that the CDD variables only explained 1.9 percent of the variation in coverage between the areas where CDDs operated. The model was not statistically significant, i.e. all correlations were fully explainable by chance variation.

There were five female CDDs among the eighty that filled in the questionnaire. The ages ran from 22 to 59 years. Ten reported having attended secondary school. Seventy percent reported having been selected by the village leaders and most of them were appointed during 1999. As many as 77 reported that they had spent two weeks or more in a year on CDTI.

Some opinions expressed in the questionnaire answers are summarised in Table 2. There are some doubts about CDTI working well. The question on support from the health sector was mainly answered positively but a reasonable number of CDDs did not share that opinion. The views on CDDs' improvement, community involvement and the feasibility of taking on other tasks were quite uniform. Generally, the last four questions point to the negative view regarding other tasks. Table 2 provides data on the responses from the CDDs.

Table 1: Estimated Coverage, Proportions of Persons that Received and Swallowed Tablets, Frequencies of Side Effects and Health Care Seeking Actions by Age and Sex in the Household Survey

Age	Male				Female			
	Receive tablets	Swallow tablets	Side effects	Health care seeking	Receive tablets	Swallow tablets	Side effects	Health care seeking
5-14	77.1	76.8	36.1	2.4	77.6	76.8	42.3	1.8
15-24	68.7	67.2	40.7	3.0	62.7	61.5	46.6	5.3
25-34	73.6	72.6	48.4	2.5	66.7	66.2	56.8	8.6
35-44	77.7	77.4	48.9	1.3	76.8	76.2	54.2	6.2
45-54	78.9	77.8	46.5	1.9	77.8	76.5	56.4	3.3
55-	80.4	78.8	56.2	3.4	74.3	74.3	55.5	2.7
Total	75.4	74.5	43.4	2.5	71.7	70.9	49.4	4.5

Table 2: Frequencies of Responses to CDTI Given by CDDs in Questionnaire

Question	Do not at all agree				Agree fully
CDTI works satisfactory	21	41	1	15	2
The support received is enough	6	31	2	22	19
The CDDs are capable for the job	3	12	5	44	16
CDDs have improved during work	21	48	7	2	2
Community is involved in process	13	49	3	12	3
CDD should not do other acts.	1	3	3	47	26
Other acts would be helpful	41	37	0	1	1
CDD will have to do other acts.	20	45	3	11	1
CDD will enhance health	31	47	1	1	0
Better monitor. With other acts.	19	48	10	3	0

Most CDDs reported that community members selected them during gatherings or general meetings but some reported that the procedures did not follow CDTI guidelines. A CDD could be selected by the village chief alone or with his cabinet or by a health worker. The village head could also appoint himself, by village head alone, or by a health worker and village chief together.

Various problems in carrying out activities were identified in the process of preparing for and implementing the distribution of Ivermectin. Transportation was a major concern. Several CDDs complained because they received no provision to cover the transportation cost needed to collect Ivermectin. Some complained that they spent their own money. Shortages of Ivermectin were noted creating tension between CDDs and community members. Poor storage facilities existed. Batches of supplies were often known to have expired because of bureaucratic delays in the system.

The issue of the fear of side effects and the impact on compliance concerned several CDDs. They noted that the issue is complicated by the lack of drugs that relieve side effects, for example itching. CDDs reported low morale due to the lack of incentives and compensation for time spent on distribution. CDDs observed that people were often absent during distribution, and this required the CDD to make repeated additional home visits. The CDDs often complained that 'I have no time of my own. People can come to me any time of the day'.

Several CDDs said they faced difficulties in reporting and documenting their activities. The problems were said to be caused by the short time for training and by community members not providing towards buying or recording supplies like notebooks and pens.

The overwhelming majority of CDDs reported they received no assistance from the health facility. Only a few reported receiving assistance, which took the form of the mobilisation of community members and making announcements about the availability of drugs. Training on implementation, reporting and management of side effects was not sufficient. Supervision and monitoring of CDD activities from the health sector was not at an acceptable level.

In a similar manner, CDDs often reported that community members did not play an active role in the distribution of Ivermectin. One response that summed up a common reason for low community involvement was: 'Nobody assisted. They did not know about the procedure. They did not receive any information about it'.

Views and Experiences of Health Workers

Selection and training of CDDs were reported to present problems. It was difficult to find literate candidates; even semi-literate CDDs find it difficult to cope with the task and the training. The health staff, as well as the CDDs, face transportation problems in getting to the training venue. Health workers also noted the lack of response and support from health authorities: 'We have written a proposal on how to train CDDs but we have not received any response yet'.

Most front-line health workers were not involved in CDD or programme supervision. This was actually left in the hands of the onchocerciasis coordinator of the District Health Service. The need for reinforced supervision was clearly recognised.

Management of side-effects was another important task discussed by health workers. They noted that ‘Some people fear side-effects so they don’t want to take the drug. They complain of itching, swelling of body, dizziness, and stomach-ache’.

A finding from the in-depth interviews with health personnel was that supervision of CDDs was a major problem:

‘CDTI is a very difficult programme. I am the chief nurse, mid-wife, consultant, leprosy inspector and in charge of delivery and outreach activities. The CDTI programme is a burden to me. It adds too much work on me’.

The DMO for Muyuka noted: ‘Some nurses are not competent enough to manage and handle records, especially financial reporting. The programme lacks a good information management system. More so, issues of onchocerciasis endemicity are not yet clear to the community members. They do not understand why some people are supposed to be treated in the hospital and some through mass treatment in the communities’.

The perceived roles of the health worker were captured in the following statement. ‘Delivery has been regular for the past three years. The health worker spends about one hour to discuss health issues but they rarely talk about onchocerciasis’.

Views and experiences of community members

In a female FGD it was noted that CDD selection criteria were not always observed. ‘We do not know who chose them. We only saw them with the nurse moving from house to house taking our names, after which they came with Mectizan. They said we should take it to treat our filaria’. Some community members were of the opinion that the CDDs were chosen by the health personnel. ‘To me, I know that he was chosen by the mid-wife to help to distribute Mectizan. We were not asked to choose them’. In an in-depth interview, a community leader admitted having appointed all the CDDs in his village after he ‘received a letter from the chief of post, to select four people and send to him for training. I called three of my councillors and my daughter and sent them for the training course’.

A major issue raised in FGDs, in-depth, and key informant interviews with community members was that of ownership of the programme. The majority of respondents said that CDTI belonged to the community. On why they thought that the programme belonged to the community, they gave responses such as: ‘we are the beneficiaries’, ‘we plan the distribution’, ‘we do the distribution’, ‘we select the distributors’, ‘the distributors is ours’, and ‘because we are told so’.

Those who thought that the programme does not belong to the community stated that it belonged to the government or the ministry of health. ‘It is the

government that brought this programme to us but we have been told that in the near future, it will be our own.' Most community members saw their role in CDTI as mainly passive.

Community members also identified other problems with the programme. These included non-involvement of certain segments of the population (especially men). On the subject of absenteeism, one woman said, 'Our men are sometimes not present when distribution takes place'. Others observed poor compliance, including both low turnout and refusal to take the drug. Others noted that there was a lack of awareness of the importance of the drug. This problem is compounded by the wrong messages which are sometimes passed to community members. Community members also pointed out organisational problems. The major complaint of communities with no health facility is that they do not have an opportunity to discuss their health needs with health workers.

Discussion

The study provides an overall estimate of Ivermectin treatment coverage as about 73 percent - not much lower than the long term sustained 75 percent stipulated as necessary to effectively interrupt transmission. The results from this study show that the overall treatment coverage (68.2 percent) is low in the study area.

In order to interrupt transmission, APOC sets a minimum coverage rate of 75 percent sustained for a long period (APOC 2002). However, there are large variations in coverage between districts as well as between households within districts. No single factor can conclusively be identified as responsible for coverage variations. Some suggestions are that overall low treatment coverage may be attributed to: poor selection and training of CDDs, poor supervision of CDDs, management of severe side effects, and the distribution process. The quantitative analysis fails at this point. Different mechanisms might be the reason for low coverage in different districts. The qualitative analysis reveals some of these.

In the CDTI approach the community, as an administrative, geographical and social construct, plans their own distribution system. They make decisions on who should distribute the drug, the mode (house to house, central location) and place (chief's compound, school, or church) of the distribution system. Communities collect Ivermectin from the collection point if it is not located far from them and decide when to distribute. The CDTI approach is an evolution from other community-based delivery strategies. It is supposed to promote active community participation as an integral part of Ivermectin distribution, to improve access to the drug and give a sense of community ownership of the process.

The information obtained in interviews reveals that the guidelines for selection and training of CDDs were sometimes ignored by some health personnel and community leaders. In addition, the health system generally did not provide adequate training skills to the health personnel. CDDs to some extent lacked the skills to conduct a household census, keep good records, maintain treatment

registers, observe and identify side-effects, report severe side-effects and give information to the community about side-effects. The lack of management skills of side-effects provided a major barrier to high treatment coverage of Ivermectin. The programme for side-effect management did not train nurses. When severe side effects occurred, nurses were not available for management. The referral and counter referral system was not working.

A lack of adequate supervision during distribution was reported, and can be one reason for low coverage. Enormous supervision problems existed at the level of the health system. There was a gross lack of transportation for the local health staff to supervise CDDs during distribution. Many of the health facilities are under-staffed and the health personnel are not properly trained to conduct supervision. No incentives were provided for supervision; therefore no health personnel were motivated to supervise the CDDs.

The Ivermectin distribution process appears to be flawed with various systemic problems. There were no drug distribution plans for CDDs, communities were given responsibility to take decisions on the mode, time, and place of distribution, but were not empowered in the decision-making process. Although the entire community should decide the selection of distributors, the decision-making process that may exist in a given community prior to the commencement of the control programme led to village leaders in some communities selecting themselves or relatives as distributors (Amazigo 2001).

A TDR Report identifies constraints influencing the task of Ivermectin distributors as: delays in the delivery of Ivermectin from the port to the country; follow up and treatment of the members of the community who are absent during the period of mass treatment (absentees); refusals; the house to house mode of distribution; and the complex record keeping demands. The schedule and work load of distributors resulted in some instances in a high attrition rate among distributors.

The success of Community-Directed Treatment with Ivermectin (CDTI) using Community-Directed Distributors (CDDs) in Onchocerciasis control has drawn attention from other disease control programmes (Walsh 1979). However, the health system is faced with quality challenges regarding their selection, training, supervision, management of severe side effects, and the distribution process. There are systemic issues that need to be addressed before ComDT can take on its role as an entry point to community-based healthcare interventions at a time when there is a need to critically examine determinants of treatment coverage of Ivermectin distribution. The main purpose here is to propose some basic conceptual elements that may help establish a consistent basis for policy, action, and research before CDDs can take on additional health care activities.

There have been various attempts in Cameroon to use a Community-Directed Treatment System and Community-Directed Distributors for other health interventions but the implications of this development for the treatment coverage

of CDTI are not clear. It is expected that the integration of additional community level health care activities into CDTI would enhance treatment coverage. However, treatment coverage may be at risk if the health system starts using CDDs for other activities without ensuring sustained high coverage. Overloading CDDs without sustained treatment coverage can erode the health system. Opinions have been expressed, rather strongly, as to the negative effects of the ultimate consequence of overloading CDDs with programmes built essentially on top-down approaches on the effective implementation of CDTI. (Brieger 2000; Zekus and Lysack 1998; Schwab 1997, Walsh and Waren 1979). What this means is that more evidence on the nature of the effect of involving CDDs in other health and development programmes on CDTI implementation is needed. This study points to some major weaknesses.

Conclusions

Community-Directed Distributors find it difficult to achieve high coverage and sustain it due to programmatic obstacles in their selection, training, supervision, and management of severe side effects and non-empowerment of the communities in decision-making.

Although coverage is not extremely low overall, there are large variations and pockets of the population are left without treatment.

At the organisational level, the issue of the quality of the distribution process has not been addressed, and because of this, the programme suffers from technical inefficiency.

Serious systemic problems still exist, and need to be rectified before community-directed distributors can take up additional health and development activities.

The communities are not involved in decision-making regarding selection of distributors, mode, place, and time of Ivermectin distribution, hence ownership and sustainability of the programme seems to be eroded.

The support from the health sector in terms of training, supervision and assistance is not sufficient everywhere since health facilities are under-staffed, poorly equipped, and poorly paid.

It is necessary, therefore, for health systems to address systemic programmatic and organisational issues before undertaking large-scale implementation programmes like community-directed treatment with Ivermectin.

To obtain high and homogenous coverage there is a need to use better routines for the selection of CDDs and select only persons that can be effectively trained. CDDs must be given better training for strengthening the health system involvement. It is necessary to give the CDDs information and knowledge about the management of severe treatment side effects including the capacity to report adequately and inform the community. Communities must be empowered to take decisions. The linkage between research-to-policy-to-action-to-practice should be clear.

References

- Amazigo, U., et al., 1998, 'Delivery Systems and Cost Recovery in Mectizan Treatment for Onchocerciasis', *Ann. Trop. Med. & Parasitol.*
- APOC Partners Meeting, 2000, DIR/APOC, Meeting May-June.
- APOC Technical Report, 2002, 'Community Directed Treatment with Ivermectin', SW1 Project July.
- Blas, E., and Limbambala, 2001, 'The Challenge of Hospitals in Health Sector Reform: The Case of Zambia', *Health Policy and Planning*, 16 suppl. 2.
- Brieger, W. R., 1996, 'Health Education to Promote Community Involvement in the Control of Tropical Diseases', *Acta Tropica*, 61: 93-106.
- Frenk, J., 1993, 'Dimensions of Health System Reform', *Health Policy*, 27.
- Godin, 1998, 'Cameroon Chad: Cost Recovery', *Annals of Tropical Medicine & Parasitology*, vol. 92, supplement no.1.
- Paphassarang, C., Philvong, K., Boupha, B. and Blas, E., 2002, 'Equity, Privatization and Cost Recovery in Urban Health Care: The Case of Lao PDR', *Health Policy and Planning*, 17, suppl.1.
- Remme, J. H. F., 1990, 'Onchocerciasis', in C.J.L., Murray and A.D. Lopez, *The Burden of Diseases: Global and Regional Estimates for 1990*, World Health Organisation.
- Schwab, M., and Syne, S. L., 1997, 'On Paradigms, Community Participation and the Future of Public Health', *American Journal of Public Health*, 87 (12):2049-2051.
- Walsh, J. A., and Warren, K. S., 1979, 'Selective Primary Health Care - An Interim Strategy for Disease Control in Developing Countries', *New England Journal of Medicine*, 301: 967-976.
- World Health Organisation, Technical Report, Series no. 852.
- World Health Organisation, 1996, 'Community-Directed Treatment with Ivermectin: Report of the multi-country study', Document TDR/AFR/RP/96.1.
- World Health Organisation, 1997, 'Twenty Years of Onchocerciasis Control Review of the work on Onchocerciasis in West Africa from 1974-1994', Geneva, WHO.
- World Health Report, 2000a, *Health Systems: Improving Performance*.
- World Health Organisation, 2000b, 'Implementation and Sustainability of Community-directed Treatment of Onchocerciasis with Ivermectin: Report of the Multi-Country Study', Document. TDR/IDE/RP/CDTI/00.1.
- World Health Report, 2002, WHO/WHR/02.1.
- Zakus, J. D. L. and Lysack, C. L., 1998, 'Revisiting Community Participation', *Health Policy and Planning*, 1998, 13 (1):1.