

In rural Ugandan communities the traditional kinship/clan system is vital to the success and sustainment of the African Programme for Onchocerciasis Control

BY N. M. KATABARWA*

Carter Center, Global 2000 River Blindness Program, P.O. Box 12027, Kampala, Uganda

F. O. RICHARDS JR

Global 2000 River Blindness Program, Carter Center, One Copenhill, Atlanta, GA 30307, U.S.A.

AND R. NDYOMUGYENYI

Ministry of Health, P.O. Box 1661, Kampala, Uganda

Received 5 April 2000, Revised 5 May 2000,

Accepted 8 May 2000

In rural Ugandan communities where onchocerciasis is meso- or hyper-endemic, control of the disease is now being carried out using a strategy of community-directed programmes for the annual distribution of ivermectin to all persons eligible to take the drug. For these programmes to achieve their annual target coverage of at least 90% of the population eligible to take ivermectin, and to continue to sustain themselves for 10-15 years or more, even after external donor funding ceases, it has been found essential to replace the initial community-based strategy, imposed from outside, by a community-directed strategy developed by the community members themselves. Furthermore, it is essential for success that full use be made of the traditional social system, which is very strong in all rural communities in Uganda. This system is based on patrilineal kinships and clans, governed by traditional law, and in it women play an important role. If this system is ignored or by-passed by government health personnel or by the sponsors and promoters of the programme, the communities are likely to fail to reach their targets.

When rural communities increase in size and complexity, following development and the arrival of migrant families, they become semi-urbanized. The kinship/clan system is then weakened, community-directed drug distribution is much more difficult to organize, and coverage targets are not often achieved. This effect is of minor importance in a rural disease, such as onchocerciasis, but is likely to be of greater significance in the control of diseases, such as tuberculosis and lymphatic filariasis, which thrive in urban environments.

Several programmes of mass chemotherapy to control major parasitic and infectious diseases in developing, tropical countries are now being supported by the World Bank and executed by the World Health Organization in partnership with the Ministries of Health in the affected countries. An important feature of this effort is that of public/private partner-

ship: national health services participating with international donor agencies, non-governmental development organizations (NGDO), and major pharmaceutical companies. Most of these programmes are based on the fundamental, final common pathway of community participation and involvement (Katarbarwa *et al.*, 1999a).

One of the most successful of these programmes is the use of ivermectin (as Mectizan

* E-mail: rvbprg@starcom.co.ug; fax: +256 41 250376.

donated by Merck & Co., Inc.) to control onchocerciasis, with its associated skin lesions and 'river blindness'. In Uganda this programme started in 1992, as a co-operative venture between the Ugandan Ministry of Health and three NGDO, namely the River Blindness Foundation (now the Global 2000 River Blindness Program), and, to a lesser extent, the Christoffel Blinden Mission and Sight Savers International. Since 1997 the efforts of these organizations have received additional support from the World Bank/World Health Organization African Programme for Onchocerciasis Control (APOC), which is now active in a number of African countries where onchocerciasis is endemic, including Uganda. The aim of this programme is to control onchocerciasis by means of annual mass distributions of ivermectin to all communities where human infection with *Onchocerca volvulus* is meso- or hyper-endemic. Since control depends largely on the ability of ivermectin to reduce and ultimately to interrupt transmission, by killing microfilariae and by interfering with their embryonic development, treatment must continue for 10–15 years or more in order to achieve success and eradicate the adult worms.

THE EARLY STAGES OF THE IVERMECTIN DISTRIBUTION PROGRAMME IN UGANDA AND THE MISTAKES MADE

The original strategy of the programme was to invoke community participation and to appoint and train community-based distributors (CBD) to distribute the ivermectin to the inhabitants of the affected communities. The 'annual treatment objective' (ATO) was defined as the treatment of all persons in the community who were eligible to take ivermectin. A coverage of at least 90% of the ATO within a period of 2 months each year was considered to be the level that would need to be achieved if the programme were to be a success.

Unfortunately, as is often the case with such programmes (Stone, 1992), the relevant

personnel, from the government health-care services, the NGDO concerned and the international health-care agencies that were promoting onchocerciasis control, initially took very little account of the social structures in Ugandan rural communities, or the skills necessary to stimulate the involvement of these communities in such a health programme. Trained only in 'modern' or 'western' health-delivery systems, they were often reluctant to allow community members to make decisions regarding the design and implementation of programmes (Foster, 1987) and, by portraying themselves as being in charge, they reduced the capacity of community members to assume the ownership of their programmes or to integrate control measures with their day-to-day activities. Sometimes they would also impose certain demands on community members without considering workable alternatives. It therefore came about that, in many places, the programme, although being nominally community-based, in fact involved little more than a request for 'community tolerance' or 'community compliance', with little or no decision-making or responsibility being devolved onto community members.

The failure of many community-based health programmes to become self-sustaining has also been attributed to the limited knowledge of the programme staff, their consultants (whether expatriate or locally trained), and their donors, concerning the community members' culture. The tendency is to rate the local culture as irrelevant or backward to the development process, when compared with 'western' knowledge and technology (Manderson, 1998). In the absence of any trained anthropological or other experienced social-science expertise, no proper account is taken of the depth and validity that existing traditional systems offer to the structuring of rural communities

In many rural communities in Uganda, it was observed that individual CBD were assigned various duties that occupied much of their time and yet were supposed to be undertaken on a voluntary basis. Not unnaturally, such CBD often asked for some remuneration

to compensate for their loss of time. Where the programme refused such remuneration, the CBD often dropped out of the programme; where the programme did provide remuneration, the CBD tended to become more accountable to the programme sponsors and staff than to their own community folk. As a result, their performance did not reach, let alone maintain, the expected level.

Some communities did indeed appoint their own health workers, one per community or per parish, who were paid by the programme organizers to carry out the ivermectin distribution. In these circumstances, when external donor funding ends, as almost inevitably it will, it is likely that the CBD will lose their benefits. They will then stop working, the programme will collapse and, in all probability, the blame will be put unjustly upon the community members.

Where the externally supported, health-care programmes lured or even coerced the community members to provide monetary incentives to the CBD, so as to sustain the activity after the donors have quit, the results have been disastrous. Some sections of the community never contributed towards monetary incentives while enjoying the benefits of the programmes. On the other hand, those who did contribute often received poor or no services. In addition, those CBD who received monetary incentives were usually selected only by certain sections of the community and hence were not trusted by other sections. Therefore, the contribution of monetary incentives to CBD was perceived as a loss by those sections of the community that had not taken part in the selection of the CBD. This state of affairs created mistrust and animosity within the community, and resulted in divisions that were very difficult to heal and which hampered community involvement in the health-care programme.

THE CHANGE TO COMMUNITY-DIRECTED TREATMENT WITH IVERMECTIN

Since 1998, and learning from past mistakes,

the ivermectin-distribution programme in Uganda, which now receives support from APOC, has adopted and implemented the strategy of 'community-directed treatment with ivermectin' (CDTI). This strategy, which is described below, is leading to much higher community success rates and is raising good prospects for continued, long-term, self-sustainment of the programme. In rural Ugandan communities the strategy depends greatly on the understanding of the community 'kinship and clan system', which is also described below.

The Roles of the National and of the District Government Health Services in the Ugandan CDTI Programmes

At the national level, the Ministry of Health is responsible for ordering supplies of ivermectin (donated free by the Mectizan Donation Programme of Merck & Co., Inc.), for its duty-free importation and for its distribution to the districts. Continued support from donors and government health services at the national and district levels is essential for the sustainment of the programme and the community-directed distribution process.

At district level in the CDTI programme, the district health authorities are responsible for:

- (1) initiating the annual mobilization and health education of the communities;
- (2) training the community-directed distributors (CDD), who have been selected by the community members;
- (3) delivering supplies of ivermectin and other medicaments to fixed points, from which the communities can collect them;
- (4) providing advice and support in the management of any severe adverse reactions associated with the first-time therapy of patients with onchocerciasis;
- (5) collecting reports from the CDD at the end of each distribution exercise;
- (6) analysing data, writing reports and providing feedback to the communities;
- (7) accounting for the resources received from government or donors; and
- (8) providing, at appropriate and agreed times

and places, the supporting resources, skills and services that are absent at the community level.

Implementing CDTI in the Communities and Integrating it with the Community Agenda

The objective of promoting community direction is to render the ivermectin-distribution programmes capable of being sustained by the community members at their level. To put this into effect successfully demands a sound understanding of the cultural factors that influence the involvement of community members in health-care programmes. Account needs to be taken of vital community aspects, such as the social structures, legal systems, resource mobilization, and sharing systems.

The concept of community-directed treatment with ivermectin has been developed to replace the vaguer term: community-based treatment programmes. The latter, in the context of Ugandan onchocerciasis control, were usually associated with inadequacy or failure. The newer, CDTI strategy involves searching for the correct and appropriate information that can be used to maximize community involvement, both in decision-making and in the assignment of appropriate programme responsibilities to community members for the betterment of their own health. The results of a multi-country study of CDTI for onchocerciasis control (WHO, 1996) and of the work of Katarbarwa *et al.* (1999b) in Uganda have revealed that communities are better able to achieve their target coverage when the community members themselves actually make the decisions as to how the programme should be organized within the community.

The CDTI programme functions in the following way. The district health personnel first explain the purpose, principles, and benefits of the programme to the communities by means of participatory health education. That done, the communities are then empowered to make all the local management decisions and carry out the treatment, without external interference. The community members first select their own, community-

directed drug distributors (CDD) and treatment centres. Members of the programme staff then tell the selected distributors and the community leaders how to store the ivermectin safely, how to determine dosage, how to manage adverse side reactions, how to keep proper records, and how to prepare reports. The communities are then left to organize their own distribution exercises. In Uganda, a community, once prepared in this way and allowed to plan and implement its own CDTI, almost always achieved and sustained the desired coverage of 90% of the eligible target population (Katarbarwa and Mutabazi, 1998).

The approach to the communities targeted for CDTI starts with meetings in the community, to explain the purpose and the strategy of treatment. Success depends on meeting with groups of a significant number or a 'critical mass' of community members and their leaders, in order to inform them about onchocerciasis and its control and the need for community-directed activities to be adopted. The CDTI strategy includes the community assuming responsibility for the following:

- (1) selecting their own CDD, who must be members of the community, and having them trained by the district health authorities at a time and venue chosen by the community;
- (2) deciding whether the distribution shall be from house to house or from a central site and, if the latter, choosing its location;
- (3) deciding how many CDD there shall be, which sections of the community each shall cover, when the distribution shall take place, and how the CDD shall be supported;
- (4) assuming responsibilities for collecting ivermectin from a central place not very far from the community;
- (5) safely storing a supply of ivermectin for the subsequent treatment of absentees and non-eligible individuals (such as the pregnant or sick) who could not take the drug at the time of mass treatment in the community;
- (6) recognizing the rare severe adverse reac-

- tions and referring individuals suffering from them to local health authorities; and
- (7) changing the treatment approach if it is found to be unsuitable after the first round of treatment.

When attempting to integrate a health-care programme into the community, there are certain issues that the organizers of donor-supported and government-sponsored programmes, and the health personnel employed by them, must understand if they are to obtain their desired objectives. Chief among these are the following:

- (1) Provision of correct information to community members.
- (2) Encouraging the community members to meet, discuss and take decisions which affect their performance.
- (3) Understanding the social structures (e.g. kinship/clan groups) and cultural systems (e.g. social codes) of the communities which, in turn, involves close contact and continued dialogue with community members.
- (4) Prioritization of health needs and interventions.
- (5) Obtaining the trust of community members.

In the Ugandan CDTI programmes, it was found that there were several other important considerations (Katarwa and Mutabazi, 1998):

- (1) Having more than one trained, community-selected CDD/50–100 persons increased the chance of good integration. This helped the CDD to accomplish their duties within an acceptable time, without affecting their domestic chores and, at the same time, it encouraged delegation of the work.
- (2) The selection of CDD from within their kinship/clan groups greatly increased the acceptability of the health-care programme, as well as facilitating the mobilization of other group members and influencing their compliance.
- (3) The distance between the homes of the CDD and those of the community mem-

bers whom they were to treat had to be short, so that the task of distribution could be fitted in conveniently with the daily chores of the CDD and other community members.

- (4) When the areas of distribution of ivermectin were divided along the lines of kinship or of the traditional social-support groups, known as *engozi* (Katarwa, 1999), the communities achieved their target coverage and sustained the programme from year to year. By contrast, when they followed the demarcation of communities by local government officials using government-determined village boundaries, the result was a failure to reach the annual coverage target.

These processes allow the community members to become stakeholders in the CDTI and to see themselves as partners in health-care delivery. The communities investigated by Katarwa *et al.* (1999b) are in four districts of Uganda: Adjumani, Moyo and Nebbi in the north-west and Kisoro in the south-west. These communities meet when necessary to identify their responsibilities, solve problems and take decisions needed to achieve their objectives (Table 1), and they maintain and enjoy the benefits that accrue from the successful implementation of what they can truly come to regard as their own programme. The mean coverages achieved by these communities, as proportions of the eligible population, increased significantly when the community-based strategy of ivermectin distribution in 1997 was replaced with a CDTI in 1998 (83.8% *v.* 93.8%; $P = 0.02$).

THE IMPORTANCE OF THE KINSHIP/CLAN SYSTEMS IN THE SOCIAL AND CULTURAL STRUCTURES OF RURAL UGANDAN COMMUNITIES AND ITS RELATIONSHIP TO HEALTH-CARE PROGRAMMES

In all rural communities in Uganda, patrilineal kinship—the successive links between the male parent and his children—is the most

TABLE 1
Mean treatment coverages in the meso- or hyper-endemic communities of four Ugandan districts, using community-based treatments (CBT) in 1997 and community-directed treatments (CDT) in 1998

<i>District</i>	<i>No. of communities</i>	<i>Treatment coverage (%)</i>	
		<i>1997</i>	<i>1998</i>
Adjumani	79	86	97
Kabale	26	89	96
Kisoro	31	84	86
Nebbi	637	76	96
All four	773	83.8	93.8

basic structure organizing individuals into social groups. It is within and through these structures that marriage, property, inheritance, and community welfare of the social system are organized. Community loyalties still divide along kinship lines, rather than in accordance with political or administrative dictates. The typical kinship group, or clan, comprises 50–100 persons, depending on the numbers of wives taken by its male members and the children produced by these marriages. As kinship groups grow, they may split (along matrilineal lines in polygamous families, or when brothers separate as a result of disputes or in search of more land for their children), thus forming sub-clans which still maintain their allegiance to the original family clan in the event of any external threat. In the northern and central districts of Uganda, families tend to be organized into homesteads that are clustered relatively close together (i.e. within a radius of 50–100 m). In the rest of the country, homesteads are mainly scattered, with the exception of Kabale district, where clustering is observed. In every case, groups of homesteads tend to belong to close relatives who can trace their descent from one male individual and who belong to the same clan or sub-clan, with the exception of those women from other clans who have married into these patrilineal families.

In areas where family homesteads are located in kinship clusters, whose membership

is based on descent from a common ancestor, the land is generally held collectively. Where family homesteads are scattered, the land belongs to individual families, but it can be subdivided and handed over to sons, especially after they marry. However, under this traditional, family-homestead culture, the right to sell a family's land to outsiders does not rest solely with the individual owner. The other kinsmen may refuse to allow the sale or demand that they have the first chance to purchase it before an outsider is allowed to buy the land. Thus, in most districts, outsiders do not have easy access to lands already occupied by the kinship group or clans. In some cases, a father's gift of land to his married son only carries the right to cultivate and not the right to sell, and most of the cultivated land is considered as belonging to the clan.

In rural communities, kinship groups may also have a much wider array of functions. They often serve as the basic units for production and distribution of produce, storage of cultural, technical and 'magical' knowledge, religious cults that worship spiritual beings (who are themselves considered as members of the kinship group), and even political representation. It is the kinsmen who ensure that their elders and the sick are looked after, that mothers and children are protected and provided for, and that there is enough labour to produce food for the community. This 'social

safety net' is admirably exemplified by the traditional, social-support systems, known as the *engozi* in south-western Uganda (Katabarwa, 1999).

It follows that, in rural Uganda, a sound knowledge of the role of kinship is essential if one is to understand the social dynamics of any community and the way in which these will influence the acceptability, management, sustainability and ultimate success or failure of any community-directed, health-care programme. To date, rural health programmes have not taken the kinship issue seriously or even bothered to consider its importance in health-care delivery. As a result, it is not surprising that community members' apparent 'refusal' to participate fully in these well-intended programmes has frustrated both government and donor-supported health programmes. In their frustration, the programme personnel usually give up truly meaningful attempts to involve the community. Instead, they 'hire' one or two community members and pay them to accomplish the necessary tasks. As a short-term remedy, this may well provide donors with quick results, but it is a policy that is incompatible with long-term sustainability of the health interventions.

THE IMPORTANCE OF SOCIAL LEGAL SYSTEMS

In the rural Ugandan communities there are two legal systems. There is the common law, which was established first by the colonial government and is now enforced by the local-government structures. The common law applies to everyone in the community. The second system is the traditional legal system, enforced by clans and kinship groups. These traditional systems have ensured the survival of the communities throughout the centuries and retain a great influence in society. Their codes govern, among other things, governance, resolution of conflict, the acquisition and distribution of wealth and land, distribution of labour, care of the sick and children, and choice of marriage partners.

Service to one's own kinship group falls under the division-of-labour and distribution-of-wealth functions of the traditional system. If such service is decided by the traditional kinship institution, it is given happily without question, and without negotiating 'incentives', for it is the means of survival of the kinship members. In contrast, the demanding of monetary incentives for services rendered to those outside one's group is quite in order, and is, indeed, encouraged. Interestingly, however, items (such as food, drink, or labour in the home or on the farm) that are provided in the course of communal service are considered as the due rights of anyone who provides this service. Their role is to reduce pressure on the individual providing the service, while at the same time strengthening kinship ties with the recipient of the service.

Avoidance of kinship duties, or refusal to recognize kinship-authority institutions, is a serious offence, with dire, even draconian, consequences. For example, if a member of the *engozi* social-support system does not respond when requested to carry a patient to hospital, he could face a fine equivalent to U.S.\$5.00 or 20 litres of local beer. If he failed to pay this fine, it would be increased after 1 day to U.S.\$20.00. If he still refused to pay, he and his family would face the wrath of his kinsmen, and could be denied communal labour in their fields or even be banished from the community.

Women who marry into or belong to a kinship group are required to care for the children of other mothers who are sick, tend their crops, prepare food for the sick, and to provide food at burial ceremonies. Any woman refusing to perform these duties without good reason would be branded a witch and thus, according to traditional belief, as a person who will bring bad omen and death to her kinship group or clan. The consequences of this are dire. She might no longer benefit from community labour in her fields, or she might be denied carriage to hospital if she fell sick. The other womenfolk might withdraw their emotional support from her, and the resultant loss of face may even lead her husband to marry another woman.

KINSHIP FACTORS IN COMMUNITY-DIRECTED TREATMENT WITH IVERMECTIN

Incentives

In Uganda, the mean per-capita income is less than U.S.\$200/year and the per-capita government allocation to health services is <U.S.\$10/year (Anon., 1999). Disease prevention and control is costly and can only be afforded if everyone in each community collaborates and contributes, not only to the costs of the user fees in government- or missionary-sponsored clinics, but also towards the intra-community management of control programmes, such as CDTI. Although ivermectin is provided free of charge to the Ugandan onchocerciasis-control programme, its distribution costs (transport, 'per diems' for staff, time spent and labour lost in childcare and the gardens etc) can only be affordable by these generally poor communities through utilization of the kinship system. Utilization of the kinship/clan system, and its associated traditional laws, greatly facilitates mobilization of the communities for resource sharing in the course of the control programme.

Katarbarwa *et al.* (1999b) observed that the members of those communities with successful CDTI programmes (that achieved and sustained their annual target coverage) had usually selected their kinsmen as CDD for distributing the ivermectin. Those communities that relied upon externally appointed CBD (i.e. CBD who are not relatives of the community members) generally failed to meet the desired treatment coverage. In most communities, externally appointed CBD could, with impunity, demand monetary or other material incentives (e.g. umbrellas, boots, T-shirts, coats, bags etc) from all those who were not their kith and kin, and they would often withhold their services if these were not forthcoming. The CBD were not constrained by the social code that governs the behaviour of kinsmen, and once monetary incentives were given, the demand for more was triggered, and a cycle of alienation of the community from the programme continued until treatment with the 'free medicine' was withheld as

a result of the cost associated with its distribution.

Another reason why community members refuse to pay monetary incentives to externally appointed CBD lies in a cultural phenomenon in rural Uganda, known as the levelling mechanism. Basically this means that when a member of a kinship or a clan acquires wealth, he is expected to share it with his kinsmen for the greater good of them all. On this basis, the kinship members would steadfastly refuse to pay any monetary incentives to a CBD who was not a member of their clan, for any money that he received, whether from them or from the promoters of the programme, would be lost to the kinship and/or clan. In contrast, when a CDD was a member of the clan, he would be bound to serve the clan free of charge, but all would understand that, if the CDD did receive any money from the external programme organizers, it (at least in part) would eventually 'trickle down' from the CDD, under the levelling mechanism, to the general benefit of his kinship/clan.

Acceptance of Tablets from Kinsmen

The fear of witchcraft or poison being administered along with the medicine that is being handed out by an outsider is often sufficient grounds for refusing to take the ivermectin that is being offered. As one woman in Kisoro district put it: 'Suppose they put something harmful in this medicine. I can't give a chance to the devil where my life and those of my family members are involved. I will only get medicine from the community members I know and trust'. She trusts mainly those related to her in the community and her husband; that is the 'world' she knows and understands. Traditional clan or kinship-group leaders, or the leaders of local *engozi* systems, are usually able to sort out such problems among their followers and persuade them to accept the tablets. They are also of great help in identifying patients with severe adverse reactions to ivermectin, counselling them and the community about why the side-effects have occurred, and helping those affected to reach health centres, when necessary. In this way, the traditional system prevents the

rare adverse effects of treatment from escalating into a general rejection of the treatment programme.

Role of Gender

Difficulties based on the gender of the CBD also arise when treatment is being offered across kinship or clan boundaries. CBD were seen as potential sexual partners for any adult person of the opposite sex in another kinship group or clan, especially when house-to-house distribution was the mode of ivermectin distribution. If male, their presence in the homestead was not welcomed by the males of the group visited; if female, their presence was resented by the females. In either case, the net result was often a drop in treatment coverage, and a feeling that the distribution programme was intrusive or threatening.

Although relatively few women have been involved in ivermectin distribution, they have been keenly interested in having access to information on the programme, and in being involved in the decision-making processes. Within their kinship groups, women are important opinion leaders, and their ideas are equally respected by their men folk. Thus, support of the programme by women has been essential, even though women have not often been physically involved in distribution of the ivermectin. Women usually attend health-education meetings with community members, and are often very active participants. Most comments and questions during such meetings come from women, and often women will boo and stop drunken or stubborn men from talking nonsense.

Effects of Migration and Urbanization

During distribution of ivermectin in 1998 and 1999 to a total of 1730 communities, three categories of community were observed.

THOSE WHERE ONLY ONE CLAN DOMINATES (37%)

In this category, when the CDTI approach was used and the dominant clan was engaged in the process, 90% coverage of the treatment-eligible population was achieved. However, when programme staff from the district

level interfered with community decision-making, such as the selection of CDD and treatment centres, this coverage was never achieved.

THOSE WITH MORE THAN ONE CLAN, EACH OCCUPYING A SPECIFIC AREA (60%)

In this category, community members had to be correctly assembled within clan-specific areas. Clans were then empowered to select their distributors and treatment centres, conveniently and appropriately located according to clans. When this approach was successfully executed, communities achieved their target of 90% coverage. When programme staff interfered with these decisions, or did not mobilize a sufficient number of specific clan members to attend and make decisions, the distribution was beset by mistrust, accusations and counter-accusations, and the target coverage was never reached.

THOSE WHERE INDIVIDUAL HOUSEHOLDS FROM MANY DIFFERENT CLANS, OR EVEN FROM DIFFERENT TRIBES, RESIDE IN ONE COMMUNITY (3%)

These communities were usually of the semi-urban type. Since onchocerciasis is primarily a rural disease, experience with applying CDTI in a semi-urban environment is limited. In semi-urban communities one finds a mixture of families from different clans and tribes, displaced from their villages, and no longer necessarily linked to land ownership. Close proximity and lack of known kinship lines leads to mistrust. As Katarwa *et al.* (1999b) reported, mobilization of the population in such communities was much more difficult and cumbersome than in rural communities (Table 2). In 1998, rural communities achieved a mean coverage of 87.8% for the eligible population whereas the semi-urban communities achieved only 63.3% ($P=0.049$). Similarly, during 1999, rural communities treated 94.3% of the eligible population whereas the semi-urban communities treated only 71.0% ($P=0.028$). More health-education sessions and visuals (poster and pamphlets), more video shows, radio jingles and other activities were required to mo-

TABLE 2
Mean, community-directed treatment coverages in the meso- or hyper-endemic communities of four Ugandan districts

<i>District</i>	<i>Treatment coverage (%)</i>			
	<i>Semi-urban communities</i>		<i>Rural communities (%)</i>	
	<i>1997</i>	<i>1998</i>	<i>1997</i>	<i>1998</i>
Adjumani	67	70	98	93
Kabale	69	67	83	93
Kisoro	42	59	85	95
Nebbi	75	88	85	96
All four	63.3	71.0	87.8	94.3

tivate the semi-urban communities. The more complex lifestyles and time-demands on families in the urban environment made it more difficult to bring together a sufficient number of community members to make the meaningful decisions needed to implement a CDTI programme. It was clear that, although neighbourliness and kinship/clan systems were determining factors in implementing satisfactory ivermectin distribution, the degree of these qualities as 'natural resources' in semi-urban communities was very varied.

The difficulties in establishing effective CDTI in semi-urban and urban environments are to some extent counteracted by the fact that onchocerciasis usually becomes less endemic as communities enlarge and become more urbanized. As human population densities increase, pollution of local *Simulium* breeding sites also increases, and there is a consequent reduction in man-fly contact. However, good penetration of semi-urban communities is vital to the success of control programmes for other diseases, such as tuberculosis and lymphatic filariasis, which are transmitted in urban environments and which also require community direction and ownership.

CONCLUSIONS

In rural Ugandan communities where onchocerciasis is endemic, if the annual iver-

mectin treatments carried out are to achieve their target coverage and become self-sustaining, they need to be based on community-directed distribution. Such distribution, if it is to succeed, must make full use of the existing local kinship/clan system. Similar social systems exist in other African countries and their recruitment into the ivermectin distribution process is likely to be critical for success.

In Uganda, it becomes more difficult to achieve satisfactory ivermectin distribution coverage in communities that are becoming semi-urbanized, which contain many migrant families, and in which the kinship/clan system is much less strong. This weakening of the kinship/clan system may become an increasing problem for community-directed health programmes aiming to control diseases that, unlike onchocerciasis, thrive in an urban or semi-urban environment.

Most health interventionists concerned with enlisting human behaviour and social structure in the battle against infectious diseases have confined themselves to studies of the 'knowledge, attitudes and perception' (KAP) of community members. These KAP studies aim to identify 'false beliefs', and then provide a guide to the best approach to replacing them with 'accurate knowledge' (Manderson, 1998). The attitude of the interventionist tends to be that of a saviour of the people, whose mission is to rid them of a 'backward' culture that

promotes disease. Experience in Uganda, on the other hand, shows that these so-called 'backward' social and cultural systems are important 'natural resources', that can and should act as a powerful motivational force for the prevention and control of disease (and indeed for the general advancement of the communities).

Increasingly more and more people are migrating from their present rural Ugandan communities towards larger towns or other areas, in search of new opportunities and fortune. In the process they become separated from their kinship groups. At the same time the rural communities are gradually changing and becoming 'modernised'. The effects of these changes on the kinship system, and

whether the bonds of friendship and neighbourliness can replace this, are factors that have yet to be studied. The optimal management of disease-control programmes in these new environments may depend upon the outcome of these future investigations.

ACKNOWLEDGEMENTS. We are grateful to the community members and health workers who willingly provided the vital information for this study. We are also indebted to Carter Center, Global 2000, APOC and the Ugandan Ministry of Health, for financial contributions, expertise and their promotion of community-directed treatment programmes for the control of onchocerciasis in Uganda.

REFERENCES

- ANON. (1999). *National Strategic Plan for the Prevention of Blindness in Uganda. 5-year Strategic Plan (Jan. 2000–Dec. 2004)*. Kampala: Ugandan Government.
- FOSTER, G. M. (1987). Bureaucratic aspects of international health agencies. *Social Science and Medicine*, **25**, 1039–1048.
- KATABARWA, M. (1999). Modern health services vs the traditional 'engozi' system in Uganda. *Lancet*, **ii**, 343.
- KATABARWA, N. M. & MUTABAZI, D. (1998). The selection and validation of indicators for monitoring progress towards self-sustainment in community-directed, ivermectin-treatment programmes for onchocerciasis control in Uganda. *Annals of Tropical Medicine and Parasitology*, **92**, 859–868.
- KATABARWA, N. M., MUTABAZI, D. & RICHARDS, F. O. (1999a). Monetary incentives are detrimental to community-directed health programmes in less-developed countries. *Lancet*, **ii**, 1909.
- KATABARWA, N. M., MUTABAZI, D. & RICHARDS, F. O. (1999b). Controlling onchocerciasis by community-directed ivermectin treatment programmes (CDITP) in Uganda: why do some communities succeed and other fail? *Annals of Tropical Medicine and Parasitology*, **94**, 343–352.
- MANDERSON, L. (1998). Anthropology in infectious disease control. *Tropical Medicine and International Health*, **3**, 1020–1027.
- STONE, L. (1992). Cultural influence in community participation in health. *Social Science and Medicine*, **35**, 409–417.
- WORLD HEALTH ORGANIZATION (1996). *Community-directed Treatment with Ivermectin. Report of a Multi-country Study*. Geneva: WHO.

Copyright of *Annals of Tropical Medicine & Parasitology* is the property of Maney Publishing and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.