



IVERMECTIN DELIVERY PROGRAM

**ONCHOCERCIASIS CONTROL PROJECT
IN THE DIVISION OF DJA ET LOBO
SOUTH PROVINCE, CAMEROON**

**ANNUAL REPORT
TO**

**THE US AGENCY
FOR INTERNATIONAL DEVELOPMENT**

**SUBMITTED
BY**

THE INTERNATIONAL EYE FOUNDATION

OCTOBER 1992

TABLE OF CONTENTS

I	REPORTING INSTITUTION	3
II	TIME PERIOD COVERED BY REPORT	3
III	ABBREVIATIONS	3
IV	POPULATION UNDER TREATMENT	3
	TREATMENT NARRATIVE	4
V	ADVERSE REACTIONS EXPERIENCE	4
	ADVERSE REACTIONS NARRATIVE	5
VI	TRAINING	7
	TRAINING NARRATIVE	8
VII	HEALTH EDUCATION/COMMUNICATION	9
	HEALTH EDUCATION NARRATIVE	9
VIII	KNOWLEDGE ATTITUDE AND PRACTICES (KAP)	10
	KAP SURVEY NARRATIVE	10
IX	EPIDEMIOLOGICAL STUDIES	11
	EPIDEMIOLOGICAL STUDIES NARRATIVE	11
X	QUALITY ASSURANCE	12
	QUALITY ASSURANCE NARRATIVE	12
XI	HIGHLIGHTS OF MAJOR EVENTS OCCURRING DURING THIS YEAR .	13
XII	STEPS TAKEN TO ENSURE SUSTAINABILITY	13
XIII	SUMMARY OF ADDITIONAL PROBLEMS OCCURRING DURING THIS YEAR AND PROPOSED SOLUTIONS	14
XIV	WHAT ASPECTS OF THE IDP HAVE BEEN ASSUMED BY MOH OR LOCAL NGOs?	14
XV	SUMMARY OF UNRESOLVED ISSUES	15
XVI	TOTAL AND SIGNIFICANT EXPENDITURE DURING THIS YEAR . . .	16
	IDP CONTRIBUTION	16
	MOH CONTRIBUTION	17
	CONTRIBUTIONS BY OTHERS	17
XVII	PERSONNEL AND ORGANIZATIONAL CHANGES OCCURRING DURING YEAR	17
XVIII	MAJOR VARIATIONS FROM THE DETAILED IMPLEMENTATION PLAN ENCOUNTERED THIS YEAR	18
XIX	MAJOR EVENTS PROPOSED FOR NEXT YEAR	18
XX	PROPOSED TECHNICAL ASSISTANCE NEEDS FOR THE NEXT YEAR .	19

IVERMECTIN DELIVERY PROGRAM ANNUAL REPORT

I REPORTING INSTITUTION

INSTITUTION: International Eye Foundation

COUNTRY: Cameroon

PROGRAM DIRECTOR: Dr. Basile Kollo

II TIME PERIOD COVERED BY REPORT

FROM: October 1, 1991 **THROUGH:** September 30, 1992

PROJECT YEAR #: 1

III ABBREVIATIONS

- CBD - Community Based Distributor
- IEC - Information, Education and Communication
- IEF - International Eye Foundation
- mf - microfilaria
- MOH - Ministry of Health
- PA - Project Assistant
- PCV - Peace Corps Volunteer
- PD - Project Director
- PHC - Primary Health Care
- PHCC - Primary Health Care Coordinator
- SESA - Santé de l'Enfant du Sud et de l'Adamaoua

IV POPULATION UNDER TREATMENT:

# PEOPLE TARGETED THIS YEAR	# PEOPLE TREATED THIS YEAR	% TARGETED TREATED	# PEOPLE TREATED THIS YEAR FOR FIRST TIME	# OF PEOPLE TREATED THIS YEAR WHO WERE TREATED LAST YEAR
18,384 ^(*)	2,316	13%	2,316	N/A

(*) This number was determined in the following way: total estimated population in the sub-divisions of Djoum and Bengbis: 30,640 x 60% eligible = 18,383. However, this number is not quite accurate. As described in the DIP, p.28, in the first year, only communities with prevalence levels above 40% were targeted for treatment. As the prevalence levels were not known then, and are still not known for all communities, the exact number of people targeted for treatment cannot be determined. As not all communities are expected to show prevalence levels >40%, the given number is an overestimate. Therefore, the number for "% targeted treated" is too low.

TREATMENT NARRATIVE:

A. *What geographical areas were targeted for treatment this year? Were these areas covered? If not, why not? Discuss any significant issues encountered.*

The sub-divisions (Arrondissements) Bengbis and Djoum were targeted for treatment during the first year.

(N.B.: In 1991, the sub-division of Djoum was divided into three new sub-divisions: Djoum, Mintom and Oveng. However, with regard to health care, the three sub-divisions still function as one, i.e. there is still only one Chief Medical Officer for all of Djoum, Mintom and Oveng, etc.. Therefore, in this report, the three sub-divisions will be collectively referred to as the sub-division of Djoum.)

No, the areas were not completely covered. While Djoum was only partly covered, additional project activities started in the sub-division of Sangmelima, instead of Bengbis, for the following reason: the first epidemiological survey in Djoum did not yield the desired results to establish an appropriate rapid assessment method with which the entire division could have been epidemiologically mapped (for a more detailed discussion of problems encountered with establishing a rapid assessment method, see section IX, "Epidemiological Studies", p.10). For the second survey, the sub-division of Sangmelima was chosen instead of Bengbis, as preliminary data suggested that, unlike Bengbis, this subdivision would contain some hypoendemic villages, as well as hyper- and mesoendemic communities. Due to people's demand for ivermectin once they have been surveyed and know that the drug is available, treatment in Bengbis was postponed and, instead, started in Sangmelima. However, as the purpose of both surveys was only to establish a reliable rapid assessment method, neither sub-division was fully surveyed. Therefore, only the survey villages were treated, and passive treatment, i.e. demand driven, health center based distribution, was started in all health centers of Djoum and the Central Hospital of Sangmelima Town.

Y ADVERSE REACTIONS EXPERIENCE:

# OF PEOPLE WITH AN ADVERSE EXPERIENCE REPORTED	# OF ADVERSE EXPERIENCES REPORTED AS SERIOUS	% #ADVERSE EFFECTS/TOTAL TREATED
43	0	2%

ADVERSE REACTIONS NARRATIVE

A. What were the most commonly experienced adverse effects?

Mild - edema (>50%)

Serious - none

B. How were serious reactions managed?

There were no serious reactions seen or reported. All mild adverse reactions were handled by a physician (the Project Director) as all the reported adverse reactions occurred in the 13 villages in Djoum that had been surveyed epidemiologically, and were treated by a mobile team, consisting of the Project Director, the PHC Coordinator and his Peace Corps Volunteer counterpart.

C. Were there any trends or patterns in adverse reaction over the year?

With 1,652 people treated through passive (= health center based) treatment, not a single case of adverse reaction has been reported for this mode of treatment. All 43 adverse reactions reported were seen in the 664 people treated through mobile teams, which brings the % adverse reactions to 6%. The fact that people treated at health centers do not report any adverse reactions is very worrisome. It is extremely unlikely that nobody experienced any adverse reactions. Much rather, it can be assumed that they were not reported. At present, there are two reasons that seem to explain best why no reactions were reported:

- 1) During the Orientation meeting held in May 1992, the great majority of participants suggested that the drugs for adverse reactions should be divided into two categories: a/Vital drugs i.e. drugs that are recommended for the treatment/management of serious adverse reactions (hypotension, difficulty in breathing); these vital drugs should be made available at no cost by the project. b/Essential drugs i.e. drugs that are recommended for the treatment/management of all other adverse reactions. These "essential drugs" are already available within the PHC network at low cost. The fact that people have to pay for these drugs is very likely to have deterred them from seeking relief at the health centers, especially as they were told that the reactions would be temporary.

- 2) Many people may not have the time, means of transportation, and/or the finances to return to the health center for treatment of any adverse reactions they may experience. It should be noted, however, that people are being told during the health education session preceding each distribution to remain close to the health unit for at least two days following ivermectin treatment.

While ivermectin is considered a very safe drug, the possibility of occurrence of serious adverse reactions should be kept in mind. Not being able to report on adverse reactions is not only a violation of the Mectizan Expert Committee but it is also unethical. With people not reporting any reactions, they may not recognize and report serious reactions, either. Serious complications for even only one person has the potential of damaging the reputation of the project. It is very important that people treated with ivermectin feel that they can receive relief in case they do not react well to the drug. The following measures have been taken to improve the reporting of adverse reactions:

- a) intensify health education oriented towards enhancement of treatment-seeking behavior for adverse reactions by the patients;
- b) to propose to the management committee of the PHC that all drugs for adverse reactions be dispensed free of charge upon patients showing their ivermectin treatment cards; furthermore, that part of the money generated by the selling of ivermectin treatment cards be used to cover the expenses of these drugs for adverse reactions. It is very likely, that the lack of reporting of adverse reactions that was noticed during the early months of passive treatment will be solved soon. Already in the first month of Year Two (i.e. October 1992) a substantial improvement is being noticed.

VI TRAINING:

# OF TRAINING SESSIONS PLANNED FOR THIS YEAR	# TRAINING SESSIONS CONDUCTED THIS YEAR	CATEGORY OF PERSONNEL TRAINED	# OF PERSONNEL IN EACH CATEGORY TRAINED THIS YEAR
<p style="text-align: center;">12</p> <p>i.e.:</p> <p>3 for core staff (epid., health ed., distrib.);</p> <p>2 for health center staff (epid., all distrib.act.)</p> <p>1 for CDBs</p> <p>= 6 x 2 sub-divisions = 12</p>	<p style="text-align: center;">8</p> <p>i.e.:</p> <p>2 for core staff (epid., distrib.) in 2 sub-divisions</p> <p>2 for health center staff (epid., distrib., not including health ed.) in 2 sub-divis.</p> <p>= 4 + 4 = 8</p>	<p>1. core staff (PHCC[*], PCV + PA^{**})</p> <p>2. health center staff (nurses, lab. techs., sanitation tech.)</p>	<p>1. <u>Djoum:</u></p> <p>a. Epid. Survey:</p> <p>1 PHCC</p> <p>1 PCV</p> <p>2 nurses</p> <p>2 lab techs.</p> <p>b. Distrib. Act.:</p> <p>13 nurses (includ.1 PHCC)</p> <p>1 sanit.tech.</p> <p>1 PCV</p> <p>2. <u>Sangmelima:</u></p> <p>a. Epid. Survey:</p> <p>1 PHCC</p> <p>1 PCV</p> <p>4 nurses</p> <p>4 lab techs.</p> <p>b. Distrib.Act.:</p> <p>46 nurses (incl.2 PHCC^{***})</p> <p>1 PCV</p>

* all three PHCCs trained in this year are nurses;

** the PA was assigned to the project only in September 1992; therefore, he only took part in the last training session held in Sangmelima for distribution activities;

*** there are two PHCCs in Sangmelima: one is the divisional (i.e. for all of Dja et Lobo) PHCC, who is in charge of SESA's IEC program, the other is the PHCC of the sub-division of Sangmelima

TRAINING NARRATIVE:

A. Explanation of any variation from plan:

- a. The core staff has not been trained formally for the health education component, as the final results of the KAP survey were not available before September 1992. For the same reason, the training sessions for the health center staff did not contain any formal training for health education. However, they received a basic set of information how to answer questions concerning the treatment.
- b. Due to the delay in epidemiological mapping (see above), no community based distribution took place this year. No CBDs were selected yet, as the decision which villages will be treated by CBDs will be based on the results of the epidemiological mapping.

B. What was the impact of training?

Generally, training was successful. At the end of the training sessions for distribution activities, the trainees were asked to fill out a questionnaire to test their newly acquired knowledge. (For the questionnaire, see Attachment I). 91.5% of the trainees scored 80% or higher, the average score was 79.6%.

Staff trained for the epidemiological surveys performed very well. As distribution has been taking place for two months only, it is too early to make an analysis of how well the staff is performing in this activity.

C. What were the major achievements in training this year?

In Djoum, at least one staff member per health unit (there are 5 health units + 2 military health units in this sub-division) was trained, which was one of the training targets for year one. In Sangmelima, only staff members from the Hospital and one urban dispensary were trained. With 17 more health units in this sub-division, at least 17 more health center staff members will be trained in the second year.

D. What were the lessons learned in training this year?

- 1) Up to 20% of the trainees from the health centers did not make good use of the training manual that was given to them. Even during an open book exam, they did not refer to it despite their inability to answer questions whose answers were clearly stated in the manual. In response to this finding, the most important parts of the training manual were enlarged and posted on the walls of the training room. As 80% did use the training manual, the content was not reduced.

- 2) Appropriate terminology is essential: the training material was translated from English to French. Occasionally, some terms were not translated to the expressions used in this area which lead to confusion (example: clinic to clinique which refers to a private, for profit health center, only; Rash= Urticaire in French).

E. What was the total number of trainers trained in Training of Trainers (TOT) sessions this year?

6 TOTs were trained (3 PHCCs + 2 PCVs + 1 PA). However, training did not take place in specific TOT sessions, rather they were trained together with the health center staff.

F. How many sessions were performed by those trained in TOT sessions?

None yet.

VII HEALTH EDUCATION/COMMUNICATION:

# VILLAGES (COMMUNITIES) TARGETED FOR HEALTH EDUCATION/COMMUNICATION THIS YEAR	# OF VILLAGES WHO RECEIVED HEALTH EDUCATION/COMMUNICATION THIS YEAR
161 (Djoum: 98 Bengbis: 63)	33 (Djoum: 13 Sangmelima: 20 = survey villages)

HEALTH EDUCATION NARRATIVE:

A. What were the major achievements in health education/communication this year?

The epidemiological surveys, and treatment in these villages, were very well received.

B. What were the lessons learned in health education/communication this year? What health education/communication strategies worked well? Which didn't?

No formal health education or social marketing has been performed yet. Despite of this, 100 to 200 people come to the health centers for treatment per day. This implies that there is a strong demand for the drug even without health education and even though they have to pay for the service.

VIII KNOWLEDGE ATTITUDE AND PRACTICES (KAP):

# VILLAGES (COMMUNITIES) TARGETED FOR KAP STUDIES THIS YEAR	# OF VILLAGES RECEIVING KAP STUDIES THIS YEAR
No specific # villages was targeted, as the basic units for the KAP survey were ethno-linguistic groups (= 4), rather than villages.	9 (Sangmelima: 7 Djoum: 2)

KAP SURVEY NARRATIVE:

- A.** *What geographical areas were targeted for KAP studies this year? Were these areas covered during the year? If not, why not? Discuss any problems encountered.*

There are four main ethno-linguistic groups in the division of Dja et Lobo which were targeted for KAP studies: Baka, Boulou, Fangs and Zaman. All four were covered by the KAP survey, which took place in 9 villages of the sub-divisions of Djoum and Sangmelima.

- B.** *Summarize the major findings of the KAP studies.*

See results of the KAP survey, Attachment II.

- C.** *What lessons were learned from the KAP studies?*

See "Recommendations" in Attachment II.

- D.** *What programs needs or gaps were uncovered by the KAP studies?*

None.

- E.** *How did the results of KAP studies influence project activities this year? What future activities were suggested and planned because of KAP study results.*

As the final results of the KAP survey were only available in September 1992, this year's activities have not been influenced. In year two, health education materials will be developed based on the findings of the KAP survey. This will be done in collaboration with AMA (Atelier Materiel Audio-visuel), a local PVO.

IX EPIDEMIOLOGICAL STUDIES:

# VILLAGES (COMMUN.) TARGETED FOR EPIDEMIOLOGICAL STUDIES THIS YEAR	# VILLAGES (COMMUNITIES) IN WHICH EPIDEMIOLOGICAL STUDIES OCCURRED THIS YEAR	# OF INDIVIDUALS SURVEYED THIS YEAR	# OF INDIVIDUALS POSITIVE THIS YEAR
377	33 Djourn: 13 Sangmelima: 20	1,182 Djourn: 402 Sangmelima: rural: 707 urban: 73	874 (= 74%) Djourn: 366/402 Sangmelima: rural: 479/707 urban: 29/73

EPIDEMIOLOGICAL STUDIES NARRATIVE:

- A. *What geographical areas were targeted for epidemiological studies this year? Were these areas covered during the year? If not, why not? Discuss any problems encountered.*

There were two types of epidemiological surveys planned for this year: the first one was an in-depth survey in 13 villages in the sub-division of Djourn in which various rapid assessment methods were compared to skin snips in order to determine which non-invasive method would be the best predictor of prevalence of onchocerciasis. Once this rapid assessment method would have been established, the remaining areas of the entire division of Dja et Lobo were scheduled to be epidemiologically mapped with this method. While the first survey in Djourn took place as scheduled, the results did not yield an appropriate rapid assessment method. The reason for this was that most surveyed communities were hyperendemic, a few were mesoendemic, none hypoendemic. Thus a correlation between prevalence levels, as established by skin snips, and the non-invasive techniques could not be determined for all levels. Therefore, a second in-depth survey had to be conducted. The sub-division of Sangmelima was chosen for this second survey, as preliminary data suggested, that, unlike Bengbis, this sub-division would contain some hypoendemic villages, as well as hyper- and mesoendemic communities. The final analysis of these two surveys was not available as of the end of the first year. Therefore, the rapid mapping of the remaining project area has not been performed yet. However, once the data are available, it is estimated that the mapping will be accomplished within two months, as the PHCCs and the health center staff will be able to map their respective sub-divisions in parallel. The results of the in-depth surveys are expected to be available no later than February 1993.

B. *What follow-up is planned for the people in this year's epidemiological studies?*

None.

C. *What were the salient findings of this year's epidemiological surveys and studies?*

Generally, the intensity of infection is very low (3 mf/snip, or less), even in villages with 100% prevalence. This is very unlike other African onchocerciasis areas: usually high prevalence levels parallel high intensity of infection which is thought to be the main risk factor for blindness. This seems to be the reason why most onchocerciasis control program target areas with high prevalence for mass treatment with ivermectin to prevent blindness. The results from the in-depth analysis of our data should tell us in the nearest future if this criterion can be applied in this project area. After the results from mapping the entire area will be available, a decision will be made which villages should receive priority for mass treatment.

X QUALITY ASSURANCE:

% REPEATED TREATMENT IN PROPER INTERVAL	% CORRECT DOSAGE FOR WEIGHT	% CORRECT USAGE OF EXCLUSION CRITERIA	% ADEQUATE IVERMECTIN SUPPLIES	% ADVERSE REACTION CORRECTLY TREATED
N.A.	98.6%	N.A. [†]	? ^{**}	100%

[†] No census data per household were taken. Therefore, non-eligible persons were not registered and the "% correct usage of exclusion criteria" can not be calculated.

^{**} What is the meaning of this indicator??

QUALITY ASSURANCE NARRATIVE:

A. *What steps were taken to ensure quality assurance with respect to the categories described in the above table?*

a) A random sample of 25% of the treatment records were checked to establish whether the correct dose per weight was given.

b) As all adverse reactions were reported in the survey villages only, and were handled by the Project Director, 100% were correctly treated.

B. *What steps were taken to remediate any problems encountered with respect to these categories?*

None encountered yet.

C. *How have supervisory and service delivery skills been improved by training?*

There are no baseline data for comparison.

XI HIGHLIGHTS OF MAJOR EVENTS OCCURRING DURING THIS YEAR:

- Within less than six months, the project was made functional, i.e. project staff was hired, project equipment purchased and shipped, project HQ established in Sangmelima, etc.
- Orientation Meeting in May 1992
- Epidemiological Surveys in March/April and June/July 1992
- KAP Surveys in January/February and July 1992
- Training began in March 1992
- Distribution began in August 1992

XII STEPS TAKEN TO ENSURE SUSTAINABILITY (TRANSFER OF CAPABILITIES) IN:

- ◆ EPIDEMIOLOGY AND SURVEILLANCE -
- ◆ HEALTH EDUCATION/COMMUNICATION -
- ◆ KAP -
- ◆ TREATMENT OF ADVERSE EFFECTS -
- ◆ OTHERS (SPECIFY) -

All people trained for project activities are part of the local MOH structure, the Project Director and the Project Assistant are both seconded by the central MOH. With the exception of the KAP survey, which was carried out by a team from Tulane University with the assistance of the Project Director, all project activities were carried out by local staff. Activities directly related to treatment, such as health education, distribution, and handling of adverse reactions, are carried out by the PHCCs, PCVs and local health center staff, with the Project Director providing supervision.

Furthermore, strong efforts have been made to integrate this project into the - barely existing - PHC system. Decisions concerning the cost recovery mechanism have been made in agreement with the Cost Recovery Committee of SESA, and, wherever functional, health centers are used for passive distribution.

XIII SUMMARY OF ADDITIONAL PROBLEMS OCCURRING DURING THIS YEAR AND PROPOSED SOLUTIONS:

There were three main problems that slowed down the progress of the project:

- 1) The status of the PHC system: while the PHC system has been carefully designed and is thought to be an appropriate system once established, it is not fully functional in any of the 44 health units of the division of Dja et Lobo. This presents a problem for this project as it is required to integrate into a PHC system that just barely exists. As the development of the PHC system is not the primary responsibility of this project, the solution of this problem requires further discussions with all the partners involved.
- 2) As the first epidemiological baseline survey did not yield a reliable rapid assessment technique, a second survey had to be conducted. The results of this survey will be analyzed in the very near future. Due to the lack of an appropriate rapid and non-invasive method, most areas of the division of Dja et Lobo have not been epidemiologically classified yet. The analysis of the second survey is expected to yield this method no later than February 1993. Once it is available, the mapping of the division is expected to be completed within two months.
- 3) The Project Assistant was only assigned in September 1992. This increased the amount of time required for supervision by the Project Director, thus leaving him less time to deal with other issues to further the progress of the project.

An additional problem, which becomes increasingly urgent, is the need for the computerized H/MIS. Time and effort are spent on designing reporting formats, as they are needed for the record keeping of this project, while waiting for the system developed by VBC/AID.

XIV WHAT ASPECTS OF THE IDP HAVE BEEN ASSUMED BY MOH OR LOCAL NGOS?:

Almost all aspects, as all project staff is either local or central MOH staff. The only exceptions are: backstopping by IEF headquarters/USA, services rendered by the local IEF support staff (i.e. the secretary/bookkeeper, driver and watchman) and technical assistance by Tulane University in the areas of data analysis (epidemiology), KAP survey, and support to the Project Director.

XV SUMMARY OF UNRESOLVED ISSUES:

The main issue that needs to be resolved yet is that of how to allocate the funds generated by selling the cards for ivermectin treatment. While most of the money is meant to be used to pay for general expenses associated with the PHC system, a certain amount should go back to onchocerciasis related activities, such as purchasing treatment cards. It would also be desirable, to finance all adverse reaction drugs with these funds to eliminate the problem that people may not present with adverse reactions because they have to pay for the service and the drugs. Treatment of adverse reactions should be included in the fee for service paid prior to treatment with ivermectin. However, as this decision cannot be made by the project staff alone, but rather has to be approved by SESA's Committee for Cost Recovery, this issue has not been settled yet. For the time being, the funds are deposited in a local account that requires a triple signature for any withdrawal (signatures have to be given by the "économiste" [responsible for managing all funds generated in the health unit], the PHCC and the Chief Medical Officer). In Djoum, the sale of cards generated CFA 260,800 (approx. \$1,000) in two months (August and September 1992), in Sangmelima, CFA 249,000 (\$950) in September, 1992, alone.

XVI TOTAL AND SIGNIFICANT EXPENDITURE DURING THIS YEAR:

1 US\$ = 260 CFA (in average: there was quite a bit of fluctuation, as the CFA is linked to the French Franc which gained strength over the US\$ during the year;)

IDP CONTRIBUTION: Country Expenses

QUARTER	CFA	US\$
1	604,812	2,326
2	4,713,211	18,128
3	3,936,611	15,141
4	3,805,595	14,637
TOTAL	13,060,229	50,232
MAJOR EXPENDITURES:		
<u>Salaries and Benefits</u>	5,267,762	20,261
<u>Surveys</u>	2,274,563	8,748
<u>Per Diem (excl. surveys)</u>	1,591,550	6,121
<u>Equipment (incl. furniture)</u>	783,720	3,014
<u>Printing, Photocopies</u>	559,925	2,154

EXPLANATION OF VARIATIONS FROM THE PLAN: None

MOH CONTRIBUTION: All MOH contributions are in kind, such as salaries of the PD, PA, and PHCC, as well as office space.

QUARTER	CFA	US\$
1	4,186,000	16,100
2	4,186,000	16,100
3	4,186,000	16,100
4	4,355,000	16,750
TOTAL	16,913,000	69,050
MAJOR EXPENDITURES:		
Salaries:		
1)Project Director	394,420/month	1,517/month
2)Project Assistant (1 month only in Y.1)	169,000/month	650/month
3)PHC Coordinator (5)	5x169,000/month	5x650/month
Office (incl. utilities)	156,000/month	600/month

EXPLANATION OF VARIATIONS FROM THE PLAN: None

CONTRIBUTIONS BY OTHERS (SPECIFY): None

XVII PERSONNEL AND ORGANIZATIONAL CHANGES OCCURRING DURING YEAR:

The Project Assistant was appointed in September 1992.

**XVIII MAJOR VARIATIONS FROM THE DETAILED IMPLEMENTATION PLAN
ENCOUNTERED THIS YEAR AND WHAT WERE THE REASONS FOR THE
VARIATIONS:**

- 1) The rapid epidemiological mapping for the entire division was scheduled to be finished by April, 1992. As the first epidemiological baseline survey did not yield a reliable rapid assessment technique, a second survey had to be conducted. The results of this survey will be analyzed in the very near future. Due to the lack of an appropriate rapid and non-invasive method, most areas of the division of Dja et Lobo have not been epidemiologically characterized yet. The analysis of the second survey is expected to yield this method no later than February 1993. Once it is available, the mapping of the division is expected to be completed within a month.
- 2) Distribution commenced in August, 1992, as scheduled. However, due to the lack of an epidemiological map, ivermectin is only handed out at health centers (passive distribution). The only exception were the survey villages, which were treated by mobile teams. This mode of distribution was chosen, as for the morale of the villagers it was important that they would receive the drug as soon as possible. They had been promised many services by other projects (including SESA) without ever receiving them. Therefore, the prompt delivery of the drug increased the villager's trust of the project staff tremendously.
- 3) The KAP survey was scheduled for March/April, 1992, but due to a conflict of schedules, the anthropologist of Tulane University could not perform the main KAP survey before July, 1992.

XIX MAJOR EVENTS PROPOSED FOR NEXT YEAR:

- Rapid epidemiological mapping of the division of Dja et Lobo;
- Formal health education campaign;
- Training of CBDs;
- Complete at least one round of ivermectin treatment in all villages of the project area targeted for mass distribution;
- Train at least one staff member per health center and capacitate all health centers of the area for passive distribution;

XX PROPOSED TECHNICAL ASSISTANCE NEEDS FOR THE NEXT YEAR:

- Development of appropriate health education materials and methods: the project will procure services from AMA (Atelier Materiel Audio-visuel), a local PVO, for the production of health education materials. As the results of the KAP were made available in September 1992, it is expected, that the health education material will be ready for field testing in the early months of 1993.
- Mid-term evaluation: while the arrangements for the mid-term evaluation are the responsibility of USAID, it is in the interest of project staff, and the IEF in general, to have a thorough mid-term evaluation. The first 18 months of the project (i.e. mid-term) will be over in March 1993.



Basile Kollo
Signature of Program Director

DR KOLO BASILE MD MPH & TM
Name - Please Type or Print

October 19, 1992
Date

Attachments:

- I Questionnaire for Evaluation, Given to Health Center Trainees
- II KAP Survey Results

NOMS & PRENOMS:

SERVICE/FORMATION SANITAIRE:

**QUESTIONNAIRE D'EVALUATION SESSION DE FORMATION POUR LA
DISTRIBUTION DE L'IVERMECTINE ET MANAGEMENT DES EFFETS SECONDAIRES**

INSTRUCTIONS: Inscrivez votre nom en haut et a gauche, dans l'espace reserve a cet effet. Vous avez besoin de votre fiche aide-memoire de posologie d'ivermectine selon le poids, sortez-la SVP. Il s'agit des cas pratiques, lisez attentivement l'annonce des questions; ne vous precipitez pas!!!

NB: c'est l'enseignant qui est evalue ici et non vous! Il s'agit de voir si le message qu'on a voulu transmettre a ete compris.

QUESTIONS

Vous obtenez les reponses suivantes d'un chef de famille:

- .nombre de personnes qui dorment dans la maison=15
- .nombre de personnes qui ont moins de 5 ans (<15kg)=3
- .nombre de personnes qui sont enceintes=1
- .nombre de personnes qui ont accouche il y a moins d'une semaine=0
- .nombre de personnes avec maladies graves et alitees=1

1/Combien de personnes peuvent prendre l'ivermectine dans cette maison?

Reponse=

2/Si toutes les personnes en (1/) qui peuvent prendre l'ivermectine dans cette maison ont un poids compris entre 65 et 85kg, de combien de comprimés d'ivermectine aurez-vous besoin pour cette maison?

Reponse=

3/Encerclez la ou les lettres qui correspondent aux effets secondaires que l'on peut observer apres un traitement a l'ivermectine:

- a/demangeaisons
- b/rash
- c/oedemes
- d/douleurs
- e/hypotension
- f/diarrhee
- g/difficulte a respirer

QUESTIONS "VRAI" OU "FAUX"

4/Marquez V(vrai) ou F(faux) selon le cas dans l'espace correspondant:

a/apres avoir distribuer de l'ivermectine dans une communaute(village,quartier) je dois demeurer au contact de la communaute pendant au moins les deux jours qui suivent.....

b/pour un sujet qui a pris de la NOTEZINE, je dois attendre au moins deux semaines avant de lui donner de l'ivermectine.....

c/l'ivermectine guerit la cecite

d/je peux donner de l'ivermectine a un sujet qui souffre de l'epilepsie

e/l'ivermectine previent la cecite

f/je peux donner de l'ivermectine a une personne qui a une forte fièvre.....

g/je dois d'abord donner de la chloroquine et/ou de l'aspirine a un sujet qui a une forte fièvre et attendre que cette fièvre tombe avant de lui donner de l'ivermectine.....

5/Marquez vrai ou faux (suite)

a/je peux donner de l'ivermectine a une femme enceinte.....

b/je peux donner de l'ivermectine a une femme qui allaite depuis 4 semaines.....

c/je peux donner de l'ivermectine a une femme qui allaite depuis cinq jours.....

d/je peux donner de l'ivermectine a un sujet de 12kg.....

e/je peux donner de l'ivermectine a un sujet malade alite....

6/ATTENTION! ATTENTION! SORTEZ VOTRE FICHE DE POSOLOGIE! NE VOUS PRECIPITEZ PAS! LISEZ BIEN LA QUESTION AVANT DE MARQUER VOTRE REPONSE! QUESTIONS VRAI/FAUX.

a/je dois donner 2 comprimés d'ivermectine a un sujet qui pese 70kg.....

b/je dois donner un demi (1/2 cp) comprimé d'ivermectine a un sujet de quatre ans qui pese 20 (vingt) kg.....

c/je dois donner zero (0) comprime d'ivermectine a un sujet de six ans qui pese quatorze kg.....

d/on peut aussi donner de l'ivermectine selon l'age et la taille.....

7/Question vrai/fauxsuite

Les fiches suivantes sont utilisees dans la distribution de l'ivermectine:

a/fiche de posologie selon le poids.....

b/fiche de rapport des reactions legeres.....

c/fiche de rapport des reactions serieuses/graves.....

d/fiche du sommaire du traitement des effets secondaires....

e/fiche de traitement par maison

f/fiche de traitement en clinique

g/fiche de stock de l'ivermectine.....

EVALUATION/APPRECIATION/CRITIQUES

8/Quelle aura ete selon vous, la plus grande faiblesse de cette session de formation?

a/manuel inadapte; b/periode trop courte; c/trop longue;

d/l'exposant etait un mauvais communicateur;

e/autre:.....

9/VOS SUGGESTIONS: a/Qu'est-ce qu'il faudrait "laisser tomber" dans le contenu de cette formation? b/Q'est-ce qu'il faudrait ajouter dans le contenu de cette formation?

10/Est-ce que apres cette formation vous vous sentez "a l'aise" pour pouvoir administrer de l'ivermectine? oui:....; non:.....

REPORT ON KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) STUDIES IN DJA ET LOBO DIVISION, SOUTH PROVINCE, CAMEROON

INTRODUCTION

Successful disease control programs require a high level of understanding of cultural factors which may either enhance or diminish the ability to achieve desired outcomes. While the primary objective of the program "Mass Distribution of Ivermectin to Control Onchocerciasis in the Department of Dja and Lobo, South Province, Cameroon" is to "combat onchocerciasis by introducing an ivermectin distribution system for high risk populations that can be sustained by indigenous health institutions", little is known in Cameroon (or elsewhere) about the way in which populations in endemic communities perceive onchocerciasis and its treatment. Especially lacking is information about perceptions of "forest onchocerciasis" in Africa, which in contrast to "savannah onchocerciasis" is relatively mild, causing less severe disease manifestations. Furthermore, the existence of two distinct language and cultural groups, and within one of them three subgroups, necessitated observations from each of these groups to determine similarities and differences with respect to onchocerciasis.

To be effective in preventing disease ivermectin must be administered on an annual basis to high risk communities over a period of at least 10 years. Consequently program sustainability is of paramount importance, and the problem of motivating individuals to seek treatment annually for a relatively mild disease (typical forest onchocerciasis) is a central challenge to those responsible for the program.

An additional factor to consider in the project target area is the presence of several filarial diseases in addition to onchocerciasis. Their clinical manifestations may be confused with onchocerciasis, and ivermectin may affect these parasites differently.

Furthermore, the Government of Cameroon is instituting a nationwide, decentralized system of primary health care built upon the essential elements of "community co-financing" and "community co-management". Thus, the costs of health care services (including drugs) provided through the public sector must be recovered, i.e. each patient is charged a fee. Obviously this creates a potential constraint for the ivermectin distribution program; increased knowledge about treatment-seeking practices for onchocerciasis, and related beliefs and behaviors, are essential to plan, implement, and maintain program activities.

23

The primary goals of the present study were to:

1. elucidate behaviors which enhance or diminish health status relative to onchocerciasis and related filarial infections,
2. assist in making culturally appropriate decisions about the implementation and long term maintenance of the ivermectin distribution program, and
3. maximize integration of the program into the primary health care system, with special emphasis on "cost recovery" requirements

METHODS AND MATERIALS

This report is derived from data from three sequential study components: (1) an initial survey conducted in January 1992 in the Dja-Lobo front-line (close proximity to the Dja river) area; (2) a July 1992 period of study in a front-line Fang village (Ze) to obtain more in-depth information about beliefs and practices related to onchocerciasis, and (3) subsequent quantitative surveys in July 1992 in representative "second-line" and "third-line" villages in Sangmelima sub-division, where the departmental seat of government lies.

During the initial survey six villages were visited to obtain general information about Fang and Baka (pygmy) knowledge about onchocerciasis (disease recognition, cause, signs and symptoms, and prognosis). Open-ended questions during focal group discussions and non-systematic observations were the primary methods used during the survey.

The second study component (in the frontline Fang village of Ze, and in the Baka camp adjacent to Ze) used the following methods:

1. Household census (name, age, sex, marital status, kilograms of cacao sold during previous year, and presence in household members of filariasis, intestinal worms, blindness and/or leopard skin;
2. Free listing of all illnesses known (8 Fang and 3 Baka informants);
3. Ranking of 28 illnesses that were mentioned at least twice in free listings. Twenty (10 male, 10 female) were asked to place the 28 illnesses into 3 groups: severe, sometimes severe, and seldom if ever severe. After selecting the ranking, each respondent was

3

asked to explain why they were so ranked to better understand concepts of severity. Finally, each respondent was asked to select the 3 most severe illnesses, and to rank them by severity.

4. Open-ended questions were asked about treatment-seeking behavior and about activities which take people closer to the Dja river.

5. Participant-observation activities

Drawing upon data and hypotheses generated by components 1 and 2, and considering the study goals listed above, a questionnaire was designed to elucidate information relative to recognition of onchocerciasis and other filarial diseases, their immediate cause, the mode(s) of acquisition, disease manifestations, treatment options and outcomes, perceptions of severity including willingness to pay for treatment relative to other common diseases, source of respondents knowledge, and radio ownership. Basic demographic data were collected for each respondent (male or female head of household) as well as related information about the family unit.

After stratifying on a geographical basis, a sample of six villages was generated using a random process. A seventh study community (neighborhood) was selected in Sangmelima city by a random process from a sample frame of city neighborhoods 15 or more years old.

The interview form was prepared first in English and then in French, and experienced interviewers fluent in French and the local languages (Boulou-Fang) were trained to administer the questionnaires. The questionnaires were field-tested and modified accordingly before the full-scale survey was begun after receiving the appropriate official clearances at departmental and village levels.

A total of 212 heads of households were interviewed in the seven communities. Each questionnaire contained 32 questions, about half yes/no and the others had multiple responses.

This report is derived from a preliminary analysis. The study will subsequently be submitted to a peer-reviewed scientific journal for publication.

RESULTS

The results of the preliminary survey have been summarized in a previous report.

25

4

The results of the second study components are summarized as follows:

Census

1. average household size 5.5 persons
2. 55% of population < 18 years of age
3. 20% of households headed by single women (divorced or widowed)
4. 16% of male head of household polygynous
5. 53% of households without cacao fields
6. 67% of households without cacao are either headed by a female, or are Baka
7. average income from cacao (for households with cacao fields) 66,000 CFA during previous year [cacao prices have been severely depressed in recent years]
8. 81% of adults report minak during previous year
9. 5% of children reported as having minak during previous year
10. 71% of adults reported having intestinal worms (misong) during previous year (compared with 90% for children)
11. 31% of adults reported having "leopard skin"

The Baka represent about 15% of the population in the target area. Although based on small samples, some of the differences between the Baka and Fang communities include absence of polygyny, lack of ownership of cacao fields, and apparent infrequent occurrence of leopard skin. [Baka rarely camp on large rivers, but rather prefer interfluvial sites for hunting, and fishing in small rivers. In contrast the Fang prefer to seek large fish in or near the Dja or in large tributaries. Thus the Baka probably have less exposure to blackflies, and lower intensity infection with onchocerciasis.] The Baka rarely use the government health care system; nor do they have family in larger towns to assist them financially or in others ways.

Other sources of income in these communities include the sale of "bush meat", wild animals, logging industry, and family members with stable government jobs.

Ranking exercise

1. More than 75% of informants placed the following diseases in the most severe category: madness caused by sorcery, hernia, gonorrhoea, sorcery attack for trespassing in others field, diarrhoea with blood, arthritis, measles, and object placed in person by sorcery.
2. When asked to rank the three most serious illnesses in the severe category, the three most frequently mentioned were: madness caused by sorcery, measles, and sorcery attack for trespassing.

3. More than 75% of informants placed the following illnesses in the "least severe" category: conjunctivitis, scabies, and tropical ulcer.
4. Filariasis, malaria, worms and blindness were in the "middle range" overall, but were not infrequently included in the most severe category, eg. they sometimes can be severe.
5. In the middle range category, the ranking from high to low was: blindness, malaria, filariasis, and intestinal worms.

None of the Baka placed bibili (=minak in Fang) or sassa (itching all over) into the serious illness category. Sassa is seen as the primary symptom of bibili, and is believed to be transmitted by wosili (=osum in Fang). They do not think bibili causes blindness, nor than it is linked to "eye-worms" (Loa loa). Ngangambolo (leopard skin) is not linked to bibili, but rather to "illness of the Dja", and also to old age. Baka did not seek specialized treatment for bibili. Most said the itching disappeared eventually without treatment; some used traditional treatments, but none mentioned going to the health center 2 kilometers distant.

The results of the questionnaire survey in the seven communities in Sangmelima sub-division are shown below.

All respondents knew of "filariasis" (minak), and virtually all believed that the itching was caused by tiny worms biting under the skin.

Over 90% of respondents said that the disease was transmitted by a fly, but about a third also said that it could also be transmitted by a mosquito. About one half also believed it could be acquired from bad water, and one-fifth believed a sorcerer could introduce the disease into people who do not share their food, or that it could be induced by eating taboo food such as panther.

Of those who said that minak was transmitted by a fly, all indicated that chrysops (deerflies) could serve as a vector, whereas only about one half knew (correctly) that the blackfly (nyamendemi) was a vector. Nearly 50% thought a tsetse fly could transmit minak as well.

Very few thought that minak could be contracted by touching an infected person, but most said it could be transmitted from mother to infant at birth. Some indicated that it could be transmitted sexually.

Virtually all respondents associated itching (eeyae) and rash (mebib) with minak, and over one half also recognized swelling of the skin and leopard skin (menve) as manifestations of minak.

With respect to ocular manifestations, nearly all respondents said that swelling and redness of the eye, as well as diminished vision, and blindness were consequences of minak. Also very important was that virtually all believed that with minak one could have a worm migrate across the eye.

Results strongly suggested that minak was viewed primarily as a disease of adults, not children.

Over 90% of respondents said they had had minak at least once, and of those about two thirds said they had sought treatment. Of those who had sought treatment, nearly half had sought treatment during the previous year. About half had received traditional treatment, one quarter an injection of M.G. Lumiere, and about one half had received phenergan and notezine (diethylcarbamazine or DEC). None had received ivermectin.

Nearly one half spent 500 CFA or more for treatment; nearly a quarter spent less than 100 CFA. Over one half received the western medication from a private clinic; very few received the medication from a public clinic. About one in ten paid a traditional healer for treatment. Virtually none obtained medication in the market for self-treatment. Nearly one half of those who sought treatment travelled 6 or more kilometers to obtain it.

Informants indicated that typically they paid about the same to treat malaria (tit), diarrhea (ntui) and intestinal worms (misong), about 60% spending >600 CFA. In comparison, an overwhelming majority of respondents said they would be willing to spend between 100 and 600 CFA to treat minak; about 20% were willing to spend over 600 CFA. Importantly, almost all said they would be willing to spend this amount once yearly for prevention (in lieu of treatment).

Very few believed that traditional treatment could completely eliminate minak, or stop the itching. Only one third said notezine could cure minak, and about a half said it could stop itching. However, almost a half said that notezine when given to treat minak could increase itching, and many believed it could cause side effects: fever, other illnesses such as malaria, body pains, and fatigue.

About 90% of respondents reported that during the previous year they had purchased western medicine to treat a family member infected with intestinal worms; over 40% had purchased such a drug 3 or more times during the previous year.

7

A weighted rating system for perceived seriousness of five common illness yielded the following result (most to least important):

1. blindness
2. filariases
3. malaria
4. intestinal worms
5. diarrhea

About 60% of respondents reported they own radios, most of which were battery operated, but about half of radio owners reported that they did not have batteries, or that their radios were not working currently for other reasons.

About half of the respondents said that they had heard something about minak from health workers; about one third reported that they had seen some information about minak (posters or other images).

RECOMMENDATIONS

A. HEALTH EDUCATION MESSAGES

1. Ivermectin treatment annually will prevent the "illness (okom) of the Dja" (=onchocerciasis) which is characterized by leopard skin, and is found mainly in villages (near the Dja) with many blackflies (nyamendemi). [in Baka ko = okom]

Comment: The word "minak" refers to all filarial diseases. Targeting minak for ivermectin therapy, rather than "illness of the Dja," carries the risk that treatment will become discredited because it does not "cure" or eliminate the clinical manifestations of Loa loa infection, namely worms migrating across the eye, and Calabar swellings (transient painful red swelling, usually on limbs and near joints). Further, epidemiologic data from Djoum and Sammelima arrondissement indicate that while most of the region would be classified as hyperendemic on the basis of skin snip positivity, only front line communities have high infection intensity and a history of high blackfly densities. Although many of the second and third line communities would be classified as hyperendemic on the basis of skin snip positivity, the intensity of infection is very low, as are most manifestations of disease. Furthermore villagers in almost all of these communities state that they have no blackflies! At the same time they clearly state that blackflies are most common near the Dja, where "illness of the Dja" is common. In short, these people, although living in "hyperendemic" villages, suffer relatively little symptomatology from onchocerciasis, and do not recognize onchocerciasis as such as a problem. They do recognize "minak", as a complex of symptoms which includes Loa as well as Onchocerca volvulus.

29'

2. Ivermectin taken annually will prevent blindness from the "illness of the Dja".

Comment: Blindness is a much feared affliction in this population (unlike much of the savannah onchocerciasis belt, where it is considered a normal process of aging). Also, nearly 90% of all survey respondents know that blindness may be a consequence of minak. It is less clear whether or not blindness is linked to "illness of the Dja" since this specific question was not asked, but in either case it is important to emphasize the linkage in the health education message.

3. Ivermectin kills many kinds of worms (misong), including those in the intestine as well as those under the skin.

Comment: Nearly 90% of respondents in the quantitative survey knew that itching was caused by tiny worms under the skin. Intestinal worms are also an almost ubiquitous problem in this region; during the previous year about 90% of households have purchased modern worm medicine for one or more family members. Since "misong" refers to all worms irrespective of size and location, it would be well to take advantage of this linguistic linkage by conveying the information (currently unknown by this population) that ivermectin kills intestinal worms as well as the tiny worms under the skin. Since the cost of ivermectin is considerably less than the alternate drugs for intestinal worms, a potential for abuse must be recognized. At least two scenarios are possible. Community members will soon realize that ivermectin kills intestinal worms, and may try to obtain it by requesting treatment for "onchocerciasis". It should be possible to control this potential abuse by refusing to re-issue an ivermectin treatment card more than once. Alternately, health workers, knowing the anthelmintic action of ivermectin, might be tempted to substitute this drug for other (more costly) drugs without telling the patient. This also should be prevented by treatment cards and strict inventory control. In any case, health message #3 must be conveyed in order to maintain credibility with the community.

4. Ivermectin is much better than other western drugs such as notezine: it is more effective and safer, and its side effects are much milder.

Comment: the survey showed that most people do not believe that currently available western medications (before ivermectin) are very effective in curing minak. Furthermore, most are aware of the relatively severe side effects of the most commonly used drug, notezine (DEC). This message is designed to enhance current beliefs, and to emphasize the superiority of the new medication.

5. Traditional treatment may help reduce the symptoms temporarily, but it will not prevent blindness and other

complications such as leopard skin.

Comment: the transitory effectiveness of traditional therapies is well known to this population. It is used with some frequency because it is virtually free and available in the village (certain plants and leaves). One can build upon this knowledge by emphasizing that only ivermectin can prevent blindness caused by "disease of the Dja".

6. Ivermectin should be taken once a year.

Comment: surprisingly, almost all interviewees said they would be willing to pay 100-600 CFA or more to prevent minak rather than treat it. While this may be an overstatement of willingness, it is important to note that South Province is relatively affluent compared to other parts of Cameroon; cash crops, especially cacao, on a seasonal basis provide considerable disposable income to this population. Households without cacao, such as most Baka households, or often those headed by divorced or widowed women, will have more difficulty in affording ivermectin for several family members on a regular basis. Approaches could be explored to reduce the cost to families unable to pay.

7. Ivermectin does not stop eye worms nor transient painful swellings.

Comment: this may be a critically important health message in order to maintain program credibility. Since ivermectin does not cure Loa infections, it is essential for people to understand this, eg. that "illness of the Dja" can be prevented by ivermectin, but not eye worms. Currently, people believe that they are part of the same disease.

8. Children may not have signs of the minak, but they are often infected. Children need to be treated each year even though they do not have evidence of disease in order to prevent damage, and also to kill intestinal worms.

Comment: see recommendation #3; also note that for the Baka, for whom exposure is exceedingly high, intestinal worms appear to be a more important source of illness than for the Fang. Consequently, health messages #3 and #8 may be especially important to "reach" the Baka population.

B. COST RECOVERY

With regard to cost recovery, the results of this survey strongly suggest that in most of Dja et Lobo division, it is feasible to collect a service fee of about 300 CFA for each dose of

ivermectin, considering the exceptions as noted under recommendation #6 This region is relatively affluent in terms of ready cash, especially after harvested cacao is sold. Strong consideration should be given to scheduling active ivermectin distribution efforts shortly after the cacao harvest.

C.SUSTAINABILITY

Because of the apparent high level of awareness of ivermectin (nationwide TV and radio interviews of Merck representatives and other authorities), the presence of the project office in Sangmelima, the recent survey activities in the Department, and training activities conducted for health workers, it is likely that the initial distribution efforts will be successful, with good coverage of the population in "high risk" villages. Long term sustainability, however, is another matter. A recent placebo-controlled study in Sierra Leone (Whitworth et.al., 1991, Trans Roy Soc Trop Med Hyg) from a "forest onchocerciasis" area similar in prevalence and intensity to our target population, concluded that "the lack of obvious benefit to a target population after the first dose of ivermectin may reduce compliance with subsequent doses". More recent publications (Whitworth et al., 1992; 86:277-280 and 86:281-283, Trans R Soc Trop Med Hyg) further confirmed that dermal signs and symptoms of onchocerciasis were not reduced by ivermectin therapy. Although there is a high level of awareness of minak in our target population, it is difficult to interpret the degree of severity which people attribute to it. In the large quantitative survey, minak ranked 2nd, below blindness and above malaria. The in-depth interviews produced a somewhat different picture, with minak ranking in the middle range of severity, and with many conditions (natural and supernatural in cause) ranked above minak. This "middle range" ranking is consistent, however, with the ranking of the five diseases selected for the larger survey questionnaire. The survey data do demonstrate, however, that people do spend large amounts of cash on western drugs! As noted, over 90% of survey repondents reported having purchased western drugs during the previous year to treat a family member for intestinal worms, and over 40% did so 3 or more times!

The effectiveness of ivermectin against intestinal worms should be exploited in an appropriate manner to help program sustainability. The key message should be that ivermectin kills intestinal worms at the same time it kills worms under the skin. The exceedingly high prevalence of intestinal worm infection in this population, and the high frequency with which people purchase western drugs for intestinal worms as revealed in the survey, argues for pushing this message, with special emphasis on children.

Visual aids (posters, stickers, flip-board charts) are useful as tools during heath education activities, but it should be recognized that an active educational campaign can be initiated through the existing network of primary health care trainers and

36

coordinators in Sangmelima and Djoum. Typically the lag time from start to finish in obtaining these materials is in the order of 6-8 months. Consequently the health messages must be initiated without depending upon this secondary material. In this case the message is more important than the medium! An effort should be made to coordinate the production of visual aids (by AMA) with the River Blindness Foundation project in North Province, but this may not be feasible because of the many differences in the target populations and appropriate health education messages in the two regions.

D. OTHER RECOMMENDATIONS AND COMMENTS

Residents of villages designated "highest risk" should be targeted for aggressive, active distribution of ivermectin as discussed in the detailed implementation plan. Conversely, residents of "lower risk" villages will be provided ivermectin on a passive basis at the nearest health center. In either case, it is essential for the health education message to make clear the distinction between the two risk levels, and the different delivery strategies to be employed.

Barry Hewlett
Barnett Cline
Basile Kollo