

GUIDELINES FOR
RAPID ASSESSMENT OF LOA LOA

UNDP/World Bank/WHO
Special Programme for Research & Training in Tropical Diseases (TDR)



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Questionnaire photo: R. Davidson (Courtesy of the Wellcome Trust Tropical Medicine Resource)

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Summary

RAPLOA is a rapid assessment procedure for *Loa loa* that uses a simple questionnaire on the history of eye worm to predict whether or not loiasis is present in a community at a high level of endemicity. In highly endemic communities, there is a risk of severe adverse reactions to the drug ivermectin following its use as treatment for either onchocerciasis or lymphatic filariasis. RAPLOA will facilitate the planning of ivermectin distribution programmes by predicting in which communities ivermectin treatment for onchocerciasis can be safely implemented.

This document describes the RAPLOA method, and provides guidelines on how to implement RAPLOA and how to interpret the results.

The guidelines are intended for planners and implementers of ivermectin distribution programmes in Africa.

Background

Reports from Cameroon indicated that severe and sometimes fatal encephalopathic adverse reactions may occur in patients who have taken ivermectin for treatment of onchocerciasis and who have a high intensity of *Loa loa* infection. Mass treatment with ivermectin is the principal intervention of programmes to eliminate onchocerciasis and lymphatic filariasis as public health problems from the African continent. The reported risk of severe adverse reactions due to *L. loa* now threatens the success of the onchocerciasis and lymphatic filariasis programmes in much of Central Africa where *Loa loa* may be endemic.

The risk of severe adverse reactions is related to the intensity of infection with *L. loa*, with the risk becoming high when the microfilarial load exceeds 30 000 mf/ml. Individuals with such high *L. loa*

microfilarial loads usually live in communities where there is a high level of loiasis endemicity. It is very important, therefore, to assess the level of loiasis endemicity in the community before initiating mass treatment against onchocerciasis in areas that are potentially endemic for *L. loa*.

The classical method used to determine the presence and intensity of *L. loa* infection is examination of blood smears using a microscope. However, this procedure is time-consuming and invasive (thus ethically unappealing) and is therefore not feasible within the context of large-scale ivermectin treatment for onchocerciasis. So it was important to develop a simple, non-invasive tool with which to rapidly assess the level of endemicity of loiasis in the community.

One such tool, a standardized questionnaire based on the clinical signs of loiasis (migration of adult *L. loa* under the conjunctiva, and Calabar swelling), was tested recently in a multicentre study carried out by three research teams from Cameroon and Nigeria. This study showed that, in areas of high endemicity of loiasis, eye worm and Calabar swelling are well known to members of the community who, in most cases, have local names for the conditions. In areas of low endemicity, however, the symptoms are not known. Thus the presence of local names indicates the presence of the disease in the community.

The proportion of interviewees reporting a history of eye worm (i.e. eye worm lasting less than seven days and confirmed by a photograph of an adult *L. loa* worm in the eye) correlated well with

the parasitological indices of endemicity. A cut-off point of 40% prevalence of eye worm history was found to be a suitable threshold for identifying communities which are at high risk from ivermectin treatment.

Hence, a simple method using a questionnaire on the history of eye worm was shown to predict the level of endemicity of *L. loa*. The method was found to be rapid, simple, non-invasive and was recommended for use in areas where *L. loa* may be endemic.

Rapid assessment procedure for *Loa loa* (RAPLOA)

RAPLOA is a method to predict, for a given community, the level of endemicity of *Loa loa* and the risk of severe adverse reactions after ivermectin treatment.

- ① Identify local names for eye worm.
- ② Collect information on the history of eye worm from 80 adults.
- ③ Calculate percentage of adults who report a history of eye worm, and predict level of *Loa loa* endemicity.

RAPLOA consists of three steps:

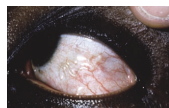
STEP 1

Identification of local names for eye worm using a community-level questionnaire.

STEP 2

Collection of information on the history of eye worm, from a sample of 80 adults in the community, using an individual-level questionnaire which has three key questions asked in the following sequence:

? Have you ever experienced or noticed worms moving along the white part of your eye?



If the answer is YES, the interviewer should then show a photograph of a *Loa loa* adult worm in

the eye, guide the respondent to recognize the worm, and ask two further questions:

? Have you ever had the condition in this picture?

? The last time you had this condition, how long did the worm stay before disappearing?

Respondents who answer positively to the first two questions, and who report that the last experience of eye worm did not exceed seven days, are recorded as having a history of eye worm.

STEP 3

Calculation of the percentage of adults who report a history of eye worm, and, on the basis of this percentage, prediction of the level of *Loa loa* endemicity. If more than 40% of respondents in a community have a history of eye worm, the level of *Loa loa* endemicity and the risk of severe adverse reactions is predicted to be too high for routine ivermectin treatment.

How to execute RAPLOA

RAPLOA coordinator is responsible for:

- ① Organizing the survey.
- ② Recruiting and training interviewers.
- ③ Overall supervision of field work.
- ④ Analysis and interpretation of data.

RESPONSIBILITY FOR THE SURVEY

One person is appointed to coordinate the RAPLOA exercise.

SURVEY TEAM

Composition of the team

It is recommended that a team be composed of the following:

- 3 interviewers
- 1 driver
- 1 field assistant

One of the interviewers acts as team leader and coordinates data collection in the field. The field assistant acts as guide and facilitator where needed, and as interpreter where there are problems of communication.

Recruitment and training of the team

Interviewers who administer the questionnaires at community level should be trained in interviewing techniques, and preferably should have a basic background in social science field work techniques or community-oriented medical care. It is also advantageous if they are knowledgeable about the areas where they will conduct the survey.

SELECTING THE COMMUNITIES TO BE SURVEYED

RAPLOA is intended for use in those communities which are earmarked for inclusion in ivermectin treatment campaigns for onchocerciasis or lymphatic filariasis and which are located in areas that are potentially endemic for *Loa loa*.

PREPARING FOR THE SURVEY

Selecting a suitable time

It is preferable to undertake RAPLOA during the dry season, to avoid transport problems. Also, peak farming periods should be avoided as far as possible. Other climatic and seasonal factors that may affect the accessibility of survey areas and the participation of the population need to be taken into consideration as well.

Survey team requires:

- ① Questionnaires and record forms.
- ② Photograph of eye worm (sample in the back of this manual).
- ③ Up-to-date map of the region plus GPS data, where possible.
- ④ Notebooks, pens, pencils, erasers (at least two of each).

Materials

1. Questionnaires and record forms

Questionnaires and record forms (see pages 14-15) should be reproduced in sufficient quantities before the start of the survey. At least 10 copies of Form A (record of individual interview results) are required for each community to be surveyed, and at least three copies of Form B (summary of survey results) are needed for each area or health district covered. The forms should be reproduced by clean photocopy or print, and should be clearly legible.

2. Photographs

Each interviewer should have a photograph of the eye worm. Plasticized photographs should be used in the multicount survey. Photographs should be located in the back of the survey kit and obtained from TDR.

3. Maps

Each team should have a map of the study area. It is recommended that each team be equipped with a GPS (global positioning system) to capture geographical coordinates for each surveyed village; this will avoid the need for mapping the survey villages and will improve the results of the rapid assessment.

4. Stationery

Stationery, (pens, pencils, erasers) should be procured in advance. Every interviewer should have a set of each.



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