Epidemiological Surveillance of a Village in Onchocerciasis Control

Useful Manual for Training and for Field Workers To use in their day-to-day Work

Volume 4, Diethyl-Carbamazaine Patch Method

WORLD HEALTH ORGANIZATION

Onchocerciasis Control Programme in West Africa (OCP)
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PREFACE

This module is intended for the following categories of health worker:

- members of epidemiological surveillance teams who will be conducting onchocerciasis surveillance in villages

- supervisors of these teams (at zonal, regional or district level, depending on the country)

- head office managers of onchocerciasis control in the country.

Trainers for this module should:

- have extensive field experience of all aspects of conducting epidemiological surveillance for onchocerciasis control

- have previous experience of conducting practical training courses.
INTRODUCTION

In the past two decades onchocerciasis has been eliminated in West Africa as a disease of public health importance, and no longer constitutes an obstacle to economic development. This has been achieved at great effort and cost, and it is essential that the disease should not be allowed to return. The situation therefore has to be monitored continually.

The most important tool we have to monitor the situation is the so-called ‘epidemiological evaluation of surveillance villages’. Such villages have been carefully selected, so that if the infection starts being transmitted again in an area we should find signs of such ‘recrudescence’ in these particular villages almost immediately. Formerly this used to be done by examining every person in the village over the age of one year, using a procedure called ‘skin snipping’ - i.e. taking two small pieces of their skin, and examining these to see if there were any microfilariae of the parasite Onchocerca volvulus present in them. Every three years the same village was revisited, and the skin snips repeated.
The skin snip is an excellent test for surveillance, but it had certain disadvantages:

- Villagers in surveillance villages were becoming reluctant to be ‘snipped’ every three years. This is because it is a painful procedure, especially for children.

- The skin snip may fail to pick up cases where the number of microfilariae in the skin is low (which is happening more and more, now that the disease is under control). In such cases the skin snip will falsely be reported as negative.

For these reasons a new test has been developed - the so called ‘DEC patch test’. ‘DEC’ stands for ‘diethyl carbamazine’, a drug which was formerly used as a microfilaricide, but which has too many side effects and was therefore discontinued. It is only applied to children from 5 to 20 years of age. In this module trainees are going to learn how to conduct ‘epidemiological surveillance’ in a village, using DEC ‘patches’.
The indicator used to establish a focus of possible recrudescence is the presence of new infections. However any new infection should be carefully investigated to establish if that infection has been acquired locally or elsewhere; and if elsewhere an effort should be made to localize as far as possible the area where the infection was acquired by carrying out a migration study. Only infections acquired locally suggest possible recrudescence, which is an indication for further investigation within the village and surrounding villages.

This module is designed so that it is both a tool for training, and a manual for field workers to use in their day-to-day work afterwards.

In some situations the skin snip method is still being used for epidemiological surveillance. Its use during epidemiological surveillance is dealt with in a separate training module.

Although we have done our best to prepare a really useful manual, one that should be easy to use, we would appreciate your comments after you have used it. They will help us to make it better.

Please write to:

PET Unit
OCP
POBox 549
OUAGADOUGOU
Burkina Faso.
EDUCATIONAL OBJECTIVES

Epidemiological surveillance is conducted by a team. For surveillance where DEC patches are used, each team has to perform two main tasks: taking a census; and preparing, applying and reading the DEC patch tests. Trainees have to learn to perform both. The supervisors of the teams also need to learn them, so that they can supervise the surveillance team effectively.

At the end of the module trainees have to be able to:

- Prepare for the trip to the villages.
- Approach a village for the first time.
- Approach a village for the second and subsequent times.
- Discuss the problems which the villagers have with the visit (and especially with the examinations) with them.
- Set up the facilities for an epidemiological evaluation in a village.
- Complete a ‘Village report’ (first visits only).
• Conduct a census of the village, using a standard form.

• Determine a child’s age by using the ‘dental formula’.

• Keep a notebook of census data corrections which have to be made.

• List the equipment needed for a field trip.

• Discuss important matters to consider when approaching a village for epidemiological surveillance to be done there.

• Describe the indications for giving ivermectin during epidemiological surveillance visits, the contra-indications for giving it, and the dosage.

• List the equipment needed for performing DEC patch tests.

• Discuss how to store and forward data after a field trip.

• Prepare a 20% solution of DEC (diethyl carbamazine) in Nivea milk, and store it safely.

• Explain to villagers why the patches need to be applied.

• Use the DEC solution to make a patch.
• Apply a patch securely to the skin over the left and right iliac crest areas of eligible villagers.

• Discuss with each villager how to care for the patches during the 24 hours that they have to remain applied.

• Read the result of the patch test after 24 hours.

• Record the findings in columns 38 and 41 of the census form N602.

• Administer ivermectin correctly to persons fulfilling the necessary criteria.

• Analyse data collected at the end of each day, to identify villagers who may be classified as ‘new infections’.

• Obtain a ‘migration history’ from each villager classified as a ‘new infection’.

• Summarise the data collected in each village on three forms: ‘Result of the census’; ‘Parasitological examination results’; and ‘Summary of new cases’.

• Store all data sheets safely, making photocopies of them as soon as possible and forwarding them without delay to the person who will do the data entry into the computer.
• Describe how onchocerciasis is caused, and how it is controlled.

• Discuss the reasons for doing epidemiological surveillance for onchocerciasis in selected villages.

• List the equipment needed for a field trip.

• Discuss important matters to consider when approaching a village for epidemiological surveillance to be done there.

• Describe the indications for giving ivermectin during epidemiological surveillance visits, the contra-indications for giving it, and the dosage.

• List the equipment needed for performing DEC patch tests.

• Discuss how to store and forward data after a field trip.
PRACTICAL ARRANGEMENTS

Epidemiological surveillance is a skill - or more precisely, a group of skills. Trainees learn skills by:

• seeing them demonstrated by someone who is an expert

• performing them themselves under supervision

• getting feedback on their performance, so they can improve.

The ideal learning situation is therefore for trainees to accompany an existing epidemiological surveillance team when they go out on a field trip. The overall module timetable will therefore look like this:

• preparatory classroom work

• field trip with existing epidemiological surveillance team

• classroom work for debriefing and assessment.

A detailed timetable is given in the next section.
**NOTE:**

- The programme is five days long, but another day or more may be needed to accommodate time for travel to distant villages, larger villages which take longer to work through etc. The content of the module has to be covered, but trainers should adapt the timetable according to the realities of their local situation.

- Most surveillance villages have been used for a long time, and first visits will therefore rarely be done. The practical training in this module will therefore take place during a repeat visit to a village.

- We assume that most of the trainees are trained health workers, who have learnt certain skills during their basic training, and practise them continually. It is therefore not necessary to include these skills in this course. Examples:
  - Treating common ailments.
  - Communicating health messages effectively.
• The visit will take longer than usual, because in addition to the usual work the trainees are observing, performing and being checked by their trainers. A smallish village should therefore be chosen (not more than 200 persons).

• In order not to disrupt the work of the team too much, the maximum number of trainees should be eight.

• Students must be warned in advance that they will be going out into the field, so that they can bring along the necessary personal belongings. Even if the village is close to the training centre it is better if the team sleeps out, since that is what they will have to do in the field later. In any case they have to have time for the medical care of the villagers.

• It is essential that the practical in the village should work well. The trainers must therefore visit the village that is going to be used well in advance, to make sure that the villagers are willing to cooperate. The date for the visit must suit the villagers, and also fit in with the timetable for the training course. A few days before the course there should be a second visit, just to make sure that the villagers are expecting the team.

• In case the first village doesn’t work out (e.g. because of an unexpected event like a funeral) it is as well to make arrangements with a second village, just in case.
• The course is 5 days long and looks like this:

```
- one day in class
- three days in the field
- one day in class.
```

• It is likely that the classroom training will be done at or near the district headquarters, so there should be a suitable village nearby. This should make it possible to fit the training into the five days.

• Arrangements for transport and meals for the field trip have to be made well in advance. All the equipment that has to go with the team to the field has to be checked, to see that it is working well. The supplies in the medical kit must be checked.

• **NOTE:** The medical kit may present a problem, in countries where cost recovery is in operation. Whatever the team can get together will be useful.

• There are plenty of materials to be prepared before the course starts:

  - Teachers are advised to go through the plan for each session, where the materials needed are clearly stated, and make sure they have everything ready that is needed.
They need to get copies of handouts and checklists ready for each student as well.

- It may be that you have to train a group which is already familiar with epidemiological surveillance, using the skin snip method. In that case it is unnecessary to run this whole training course. Rather, you will select the sessions and handouts which deal specifically with the performance of the new DEC patch test:
  - especially Sessions 7a, 8, 10
  - small portions of Sessions 5, 6, 11

- It will be best to do this training in the field, but it need only last two days, travelling included.
### DETAILED COURSE TIMETABLE

**DAY 1**

**MORNING: CLASSROOM SESSION**

<table>
<thead>
<tr>
<th><strong>SESSION 1</strong></th>
<th><strong>Introduction to the course</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>07h00-07h50</td>
</tr>
</tbody>
</table>
| **CONTENT:**  | • The objectives of the module.  
                • Practical arrangements.     |
| **Method:**   | • Introductions - trainers and trainees.  
                • Trainer introduces the objectives of the course  
                • Time for students to ask questions, discuss, clarify.  
                • Trainer hands out course timetable, goes through it with trainees.  
                • Trainer discusses practical arrangements with trainees: accommodation, transport etc.  |
| **Materials:**| • Handout: course objectives |

<table>
<thead>
<tr>
<th><strong>SESSION 2</strong></th>
<th><strong>Onchocerciasis and epidemiological surveillance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>08h00-09h20</td>
</tr>
</tbody>
</table>
| **CONTENT:**  | • Onchocerciasis: how it is caused and spread.  
                • Onchocerciasis: symptoms and signs.  
                • The control of onchocerciasis and the success of OCP.  
                • The role of epidemiological surveillance in preventing the return of the disease.  
                • The end of OCP in 2002, and the need for countries to take over the surveillance.  |
| **METHOD:**   | • This session is best done as a discussion, since the trainees may know a lot already about onchocerciasis.  
                The trainer introduces each of the topics above; asks what students know; adds what they don’t know.  
                • At the end he asks: ‘So what is epidemiological surveillance? And why is it important? And why do you have to learn to do it?’  |
<p>| <strong>Materials:</strong>| • Handout: ‘Onchocerciasis and its management’.  |</p>
<table>
<thead>
<tr>
<th>SESSION 3</th>
<th>Ivermectin; determining a child’s age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>09h30-10h20</td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>Ivermectin: indications, dosage, side-effects.</td>
</tr>
<tr>
<td>•</td>
<td>Determining a child’s age from his dentition.</td>
</tr>
<tr>
<td><strong>Method:</strong></td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>Discussion about ivermectin: its dosage, and the contra-indications for its use. The trainer finds out what trainees know and adds if necessary. Give out the handout and discuss it.</td>
</tr>
<tr>
<td>•</td>
<td>Similar discussion about the side-effects and their treatment - again giving out and discussing handout at the end.</td>
</tr>
<tr>
<td>•</td>
<td>Give out the handout about the dental formula. Discuss it until everyone is clear about what it means. Then call in the mothers with the small children and use the formula to determine the children’s ages.</td>
</tr>
<tr>
<td>•</td>
<td>NOTE: If the practical with children can’t be organised, make up a few case studies (see example at the end of the module).</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>Measuring rod.</td>
</tr>
<tr>
<td>•</td>
<td>Ivermectin tablets.</td>
</tr>
<tr>
<td>•</td>
<td>Handouts: ‘Dental formula to determine a child’s age’; ‘Giving ivermectin during the visit’; ‘Side-effects of ivermectin’.</td>
</tr>
<tr>
<td>•</td>
<td>A few small children - ages 3 to 8 (of district team staff members if possible - with their mothers).</td>
</tr>
<tr>
<td>SESSION 4</td>
<td>Approaching a village</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Time</strong> :</td>
<td>10h30-12h00</td>
</tr>
<tr>
<td><strong>Content</strong> :</td>
<td>• The importance of doing the visit well: building a good relationship..&lt;br&gt;• The information the village needs to have.&lt;br&gt;• Exactly what the villagers are going to be asked to do.</td>
</tr>
<tr>
<td><strong>Method</strong> :</td>
<td>• Trainer asks: ‘Why is it so important to have a good relationship with the villagers in the sentinel villages? How can we build a good relationship with them?’ Trainees discuss, come up with suggestions.&lt;br&gt;• Trainer gives handout: ‘Upon arrival at a village’ - all read the section ‘Things to bear in mind’ quietly, followed by a discussion of its main points.&lt;br&gt;• Group discussion about what to tell the villagers about epidemiological surveillance - the key facts - trainer summarises on blackboard.&lt;br&gt;• Group discussion about what to ask villagers to do during the visit - trainer summarises on blackboard.&lt;br&gt;• Students work in groups of 2, read through the second part of the handout: ‘Steps to follow’. Each prepares a small memo that he can use during such a meeting, on a small piece of paper.&lt;br&gt;• Role play: three trainees play a team arriving at a village, trainers and other trainees play chief and villagers (the trainees use the memo they have prepared). After the play the ‘team’ get feedback from the others, using the material in the handout as a checklist.&lt;br&gt;• Trainers asks a trainee to summarise the lessons learnt.</td>
</tr>
<tr>
<td><strong>Materials</strong> :</td>
<td>• Handout: Blackboard and chalk.</td>
</tr>
</tbody>
</table>
**SESSION 5**  
Problems villagers may have with the DEC patch test

**TIME:**  
15h00-15h50

<table>
<thead>
<tr>
<th>Content</th>
<th>Method</th>
</tr>
</thead>
</table>
| The problems villagers may experience with the DEC patch test.  
Dealing with these problems constructively. | Trainer asks: ‘How would you feel if a group of people arrived in your village every few years and interrupted your lives for two days?’ Trainees discuss.  
Trainer asks: ‘Is it important always to go back to the same village? Why?’ Trainees discuss the reasons.  
Trainer gives handout: ‘Discussing problems with villagers’. Trainees work through it together.  
Role play. Three trainees play the ‘team’, the trainers and the other trainees play a group of disgruntled villagers. The ‘team’ tries the approach suggested in the handout. At the end the others give feedback.  
The trainers ask one of the trainees to summarise the lessons learnt. |

<table>
<thead>
<tr>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handout: ‘Discussing problems with villagers’.</td>
</tr>
</tbody>
</table>
## SESSION 6

### Preparing for the field trip

<table>
<thead>
<tr>
<th>Time:</th>
<th>from 16h00 - as long as is needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content:</td>
<td></td>
</tr>
</tbody>
</table>
  - The steps to be taken to prepare for a field trip.  
  - The equipment and materials to take along.  
  - Preparing the census forms and the list of families to be examined.  
  - Preparing for the clinic for sick villagers.  |
| Method: |  
  - Trainees are given the handout ‘Preparing for a field trip’ to read. The trainer discusses it with them, and points out important practical aspects.  
  - Under guidance of the census clerk in the team the trainees prepare (by hand) all the census forms needed for the coming visit. They complete the columns indicated in the handout: ‘Census procedure: later visits’.  
  - When the forms are ready they are safely stored in a folder in the record box for that village.  
  - Everyone plans together how they will run the clinic for sick villagers in the evenings.  
  - For the rest of the afternoon trainees help the team to prepare for the trip. They check all the equipment, using the checklists; also the box of medical supplies.  
  - The trainers (who are of course team members themselves) let the trainees do as much as possible themselves, and guide them where necessary.  
  - The vehicles are checked and loaded.  |
| Materials: |  
  - The records of the previous visits to the village.  
  - Enough new census forms N602.  
  - Handouts: ‘Equipment needed for a field trip’; ‘Preparing for a field trip’.  
  - Handout: ‘Census procedure: later visits’.  
  - Handout: ‘Preparing and applying DEC patches’  
  - All the equipment needed for the trip.  |
**SESSION 6a (in the evening)**

- Trainers meet to discuss the students’ progress that day.
- They make sure everything is ready for an early start the next morning.
DAY 2

ALL DAY: IN THE FIELD

In the morning:

The team travels to the village that is going to be examined.

<table>
<thead>
<tr>
<th>SESSION 7</th>
<th>Arriving at the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>Sometime in the afternoon.</td>
</tr>
<tr>
<td>Content:</td>
<td></td>
</tr>
<tr>
<td>• Greeting the village leaders.</td>
<td></td>
</tr>
<tr>
<td>• Making practical arrangements.</td>
<td></td>
</tr>
<tr>
<td>• Setting up camp.</td>
<td></td>
</tr>
<tr>
<td>• Preparing for the practicals the next day.</td>
<td></td>
</tr>
<tr>
<td>Method:</td>
<td></td>
</tr>
<tr>
<td>• On arrival the trainers and trainees go to see the village chief and councillors, to greet them and to make the necessary arrangements. The trainers let the trainees handle everything, and give feedback afterwards.</td>
<td></td>
</tr>
<tr>
<td>• Using the box of past records of the village, the trainees prepare the list of families that must come for examination the next day, in the order that they should come (i.e. in the order of the ‘Family numbers’). They give the list to the person (councillor/secretary) who is going to be arranging the arrival of the families for the examination the next day.</td>
<td></td>
</tr>
<tr>
<td>• The trainees set up the camp and the working area, being guided by the handout ‘Setting up the facilities and organising the movement’. The trainers supervise them.</td>
<td></td>
</tr>
<tr>
<td>• The trainees also set up a place where they can see sick villagers.</td>
<td></td>
</tr>
<tr>
<td>Materials:</td>
<td></td>
</tr>
<tr>
<td>• All the equipment for the camp and the examination.</td>
<td></td>
</tr>
<tr>
<td>• Handout: ‘Setting up the facilities and organising the movement’.</td>
<td></td>
</tr>
</tbody>
</table>
SESSION 7a (in the evening):

- The trainees have to familiarise themselves with the skills they are going to be learning the next day. Together with a trainer they work through the following checklists:
  - ‘Census procedure: first visits’ and ‘Census procedure: later visits’.
  - ‘The DEC patch test’, ‘Preparing and applying DEC patches’ and ‘Reading a DEC patch test’.

**NOTE:** This can be done in the afternoon if the team gets to the village on time.

- Each group takes turns to see any sick villagers that arrive to be examined and treated.
- Finally trainers meet to make sure everything is ready for the next day.
### DAY 3

#### ALL DAY: PRACTICAL IN THE VILLAGE

<table>
<thead>
<tr>
<th>SESSION 8</th>
<th>Conducting epidemiological surveillance in a village</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>All day - with breaks for tea and lunch.</td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td>• Setting out the equipment.</td>
</tr>
<tr>
<td></td>
<td>• Conducting the census according to families.</td>
</tr>
<tr>
<td></td>
<td>• Noting changes from the previous census in the census notebook.</td>
</tr>
<tr>
<td></td>
<td>• Applying patch tests to everyone from 5 to 20 years of age.</td>
</tr>
<tr>
<td><strong>Method:</strong></td>
<td>• Trainees set out the equipment under guidance of the trainers.</td>
</tr>
<tr>
<td></td>
<td>• The families are called, as agreed, and the normal process of taking the census and applying the DEC patches starts. The trainers demonstrate first, then let the trainees practice, and give feedback. This means that every trainee will have many opportunities to practise the skills he needs to learn.</td>
</tr>
<tr>
<td></td>
<td>• Each trainee must get sufficient opportunity to learn both tasks: taking the census, and preparing/applying the DEC patches. Here is an example of a suggested timetable, which will enable all trainees to learn each skill well:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>« Work station »</th>
<th>1st period</th>
<th>2nd period</th>
<th>3rd period</th>
<th>4th period</th>
</tr>
</thead>
</table>

This is for 8 trainees.

| **Materials:** | • All the equipment that has been brought along. |
|               | • Handout: ‘Equipment needed for a field trip’. |
|               | • Handout: ‘Setting up the facilities and organising the movement’. |
**SESSION 9**

**Writing the Village Report**

<table>
<thead>
<tr>
<th>Time</th>
<th>1½ hours in the later afternoon/ early evening</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content:</strong></td>
<td>• The headings of the report.</td>
</tr>
<tr>
<td></td>
<td>• Writing the report.</td>
</tr>
<tr>
<td><strong>Method:</strong></td>
<td>• Trainees sit at the folding tables, in the shade.</td>
</tr>
<tr>
<td></td>
<td>• Trainees get a copy of the handout: ‘Writing up the «Village Report»’. The trainer works through it with them. They briefly look at the example in the handout.</td>
</tr>
<tr>
<td></td>
<td>• Working in groups of 2 the trainees write the report for the village they are in, using the information they have gained during the visit. If they need any add information they ask one of the villagers who has been helping them.</td>
</tr>
<tr>
<td></td>
<td>• They first do a rough draft, then a neat one. Upon completion they hand them to the trainers who check them and give feedback (then or later).</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
<td>• Handout: ‘Writing up the «Village Report»’.</td>
</tr>
<tr>
<td></td>
<td>• Paper and pens.</td>
</tr>
</tbody>
</table>

**SESSION 9A (IN THE EVENING)**

- Trainees take turns to see any sick villagers that arrive to be examined and treated.
- It may be that villagers will arrive whose DEC patches fell off after less than 3 hours. They are immediately given new ones, and instructed to report towards midday on the next day for the test to be read.
- Trainers meet to assess trainees’ skills, using the skills assessment sheet at the end of the module. Trainees who are still not coping are called in and an opportunity is made for them to practice again the next day. This is unlikely, since the skills are not complex and there has been a lot of opportunity to practise.
**DAY 4**

**MORNING: PRACTICAL IN THE VILLAGE**

<table>
<thead>
<tr>
<th>SESSION 10</th>
<th>Reading the DEC patch tests at 24 hours; identifying ‘new infections’; administering ivermectin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>3 hours during the morning</td>
</tr>
</tbody>
</table>
| **Content:** | • Reading the DEC patch test.  
  • Identifying ‘new infections’ and taking a ‘migratory history’ from them.  
  • Giving ivermectin appropriately to positive cases. |
| **Method:**   | • Begin 24 hours after the first DEC patches were applied.  
  • Demonstration by trainer, practice by trainee, feedback from trainer.  
  • All the trainees get an opportunity to practice reading the patch tests, and recording the results.  
  • For every new case two students work together to take a ‘migration history’ - all according to the handout: ‘Verification of new cases; the migration history’. The trainers supervise.  
  • NOTE: if there are no ‘new infections’, the trainers make up one imaginary one for each trainee. The trainees write down the ‘migratory history’. Trainers check the work and give feedback afterwards.  
  • Positive cases are given ivermectin in the right doses (provided there are no contra-indications). |
| **Materials:** | • Handout: ‘Reading a DEC patch test’.  
  • Handout: ‘Verification of new cases; the migration history’.  
  • Handouts: ‘Giving ivermectin during the visit’; ‘Side-effects of ivermectin’. |
### SESSION 11

**Writing the summary data tables**

<table>
<thead>
<tr>
<th>Time:</th>
<th>1½ hours in the morning (after Session 10).</th>
</tr>
</thead>
</table>
| Content: | The census data summary.  
The results of the parasitological examination.  
The summary of new cases. |
| Method: | Trainees sit at the folding tables, in the shade.  
Trainer gives out handout ‘Completing summary sheets of data collected’.  
Trainees work in groups of two. Each group gets given a copy of each summary form, and use the raw data to complete them. They refer to the handout and are guided by the trainers.  
Trainers give feedback afterwards. |
| Materials: | Handout: ‘Completing summary sheets of data collected’.  
The completed census forms and migratory histories from the previous day.  
Enough copies of each summary form. |

### SESSION 11a (in the afternoon and evening)

- The team works together to pack up the camp.
- Courtesy visit to chief and councillors to make a report, and to thank them. The trainees undertake this again, with feedback from the trainers afterwards.
- Return journey to the course base and classroom.
- Trainers meet.
  - They go through Village Reports and assess them.
  - They assess all the skills the students learnt that day, using the skills assessment sheet at the end of the module.
**DAY 5**

**MORNING: CLASSROOM SESSION**

In the morning:
Trainers meet at 07h00 to set the questions for the written/ oral examination.

<table>
<thead>
<tr>
<th>SESSION 12</th>
<th>Debriefing after the village visit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>08h00-08h50</td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td>• Lessons learnt from the visit to the village.</td>
</tr>
</tbody>
</table>
| **Method:** | • Discussion. Both trainers and trainees get the opportunity to raise problems they had, or observed; solutions are worked out.  
|           | • This is also the opportunity for the trainers to comment on any specific weaknesses they noted. |
| **Materials:** | • The skills assessment sheet. |

<table>
<thead>
<tr>
<th>SESSION 13</th>
<th>Storing and distributing data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td>09h00-09h50</td>
</tr>
</tbody>
</table>
| **Content:** | • Storing data collected.  
|           | • Forwarding data collected to be analysed. |
| **Method:** | • Trainers give out handout ‘How to store and forward data after field visit’. All work quickly through it.  
|           | • Trainees decide what has to be done with the data now; trainers give guidance. Photocopies are made of every form that is to be sent off; the originals are stored in the box with the village data.  
|           | • If no photocopier is available, this will be done on return to Headquarters. Trainees then discuss what should still be done. |
| **Materials:** | • Handout: ‘How to store and forward data after field visit’.  
|           | • Photocopier and paper (if available). |
### SESSION 14  Choosing new sentinel villages

<table>
<thead>
<tr>
<th>Time:</th>
<th>10h00-10h50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The criteria for choosing sentinel villages.</td>
</tr>
<tr>
<td></td>
<td>• The process of choosing one.</td>
</tr>
<tr>
<td><strong>Method:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Trainer asks: ‘Under what circumstances may we have to choose new sentinel villages?’ Discussion follows.</td>
</tr>
<tr>
<td></td>
<td>• Trainer refers trainees to criteria for sentinel villages, at the back of the handout: ‘Onchocerciasis and its management’. They work through it briefly.</td>
</tr>
<tr>
<td></td>
<td>• Trainer presents trainees with a case study. The students work through it two by two, and report their decisions to the group. Decisions are discussed and feedback given.</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Handout: ‘Onchocerciasis and its management’.</td>
</tr>
<tr>
<td></td>
<td>• Case study on choosing a new sentinel village.</td>
</tr>
</tbody>
</table>

### SESSION 15  Written test

<table>
<thead>
<tr>
<th>Time:</th>
<th>11h00-11h50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Questions covering all the knowledge and decisions students have to learn - dealing with 'must knows' rather than 'nice to knows'.</td>
</tr>
<tr>
<td><strong>Method:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The trainers will have set the questions early that morning.</td>
</tr>
<tr>
<td></td>
<td>• While the students are writing the teachers meet to finally assess all the students’ practical skills, using the skills assessment sheet, and work out a total mark. They decide who passes and fails the practical.</td>
</tr>
<tr>
<td></td>
<td>• The trainers do the marking during the lunch break, and prepare the sheet with the final results.</td>
</tr>
<tr>
<td><strong>Materials:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Prepared questions.</td>
</tr>
<tr>
<td></td>
<td>• Paper.</td>
</tr>
<tr>
<td></td>
<td>• Skills assessment forms.</td>
</tr>
</tbody>
</table>
### SESSION 16

**Closing ceremony**

**Time:** 14h00-14h20

**Method:**
- The results are put up on a notice board before the ceremony.
- The usual: thank yous, handing out of attendance certificates and enjoying a snack.
Onchocerciasis and its management

Onchocerciasis is a disease caused by the macrofilaria Onchocerca volvulus, which invades the subcutaneous tissues of the body.

**The life cycle of Onchocerca Volvulus**

- The female worm produces millions of microfilariae, which migrate to the skin of the infected person.
- The female blackfly *Simulium* needs blood meals before it can lay its eggs. When it bites an infected person it ingests some of the microfilariae together with the blood.
- The microfilariae go through three larval stages in the blackfly, the last of which migrates to the head and mouthpiece of the fly.
- When the blackfly bites a human again, the larvae are introduced into the skin of this individual. The larvae grow into adulthood in the subcutaneous tissues of the new victim, and within about a year start producing microfilariae again. The adult worms live for about 14 years.
The life cycle of the blackfly *Simulium*

After taking a blood meal the female backfly lays her eggs at the edge of fast flowing streams and rivers.

The eggs hatch and the larvae live in the water, attached to objects like leaves, sticks and stones. They need oxygen rich water to thrive, which is why the fly lays her eggs next to fast flowing water.

After going through a few larval stages and a pupal stage, the adult flies emerge from the water 7-10 days after the eggs were laid.

The adult female fly lays a large number of eggs every 4 to 5 days of her short life. Between every egg laying she has to take a blood meal. She will therefore bite several humans, at an interval of a week or so. This makes her an ideal vector for the parasite.

The blackflies clearly prefer living close to rivers, and that is where most cases of onchocerciasis are found (hence the old name ‘river blindness’). However a single fly can migrate a hundred kilometres or more, especially if assisted by strong winds.
A blackfly *Simulium* taking its blood meal

Eggs of blackfly *Simulium* attached to a stick
Symptoms and signs of onchocerciasis

Almost all the symptoms and signs are caused by the microfilariae, and not by the adult worm.

- The most common symptom is itching, which is caused by body’s reaction to microfilariae dying in the skin. It is severe and continues day and night. This leads to the following clinical signs:
  - an onchocercal dermatitis - small papules
  - ‘lizard skin’ - areas of roughening
  - ‘leopard skin’ - areas of depigmentation (especially on the lower limbs).

- As the number of microfilariae in the body increases, increasing numbers find their way to the eyes. Every part of the eye is eventually affected by inflammation, tissue damage and scarring. This leads to a gradual loss of vision, and eventually to irreversible blindness - often by as early as the age of thirty-five.

- The adult worms may cause painless nodules under the skin. These are especially noticeable over bony parts such as the skull and pelvis.


**Symptoms and signs of onchocerciasis**

- Itching
- Onchocercal dermatitis
- "Lizard skin"
- "Leopard skin"
- Nodule in the face
- Loss of vision
• The constant itch (leading to lack of sleep), the slow loss of vision, and the effect of the high parasite load together have a profound effect on the quality of life of the sufferers. They become weak, debilitated and depressed. In small children the heavy parasite load can interfere with growth and development, leading to a clinical syndrome referred to as ‘onchocercal cretinism’.

As a result of the disease many fertile river basins were abandoned by their populations, with profound economic consequences for the countries concerned.
Diagnosis of onchocerciasis

The diagnosis can be made in either of two ways:

- By taking two small skin biopsies (over the left and right iliac crests respectively) and examining them microscopically. The living microfilariae are easily observed emerging from the biopsies.

![Taking skin biopsies](image-url)
• By applying DEC (diethyl-carbamazine) to the skin over each of the two iliac crests, and examining the skin under the patches after 24 hours, to see if there is an inflammatory reaction (but note: *Mansonella streptocerca* also gives a positive reaction).

Applying DEC patches
Treatment of onchocerciasis

Before 1987, there was no effective treatment known. DEC was tried, but it had many serious side-effects.

The only drug we now have available is ivermectin. This is a non-toxic, well tolerated compound:

- It is highly effective as a microfilaricide. For this reason it immediately relieves the itching, and also causes early eye lesions to be reversed. It achieves these effects by being administered once a year.
• It does not however kill the adult parasite, although it appears to lower the fertility of the female worm.

More detailed information about ivermectin and its use is given in a separate handout.

Control of onchocerciasis

In order to control the disease we have to break its cycle of transmission (man → blackfly → man). Two ways have been worked out of achieving this:

1. Larviciding

The goal here is to eliminate the vector *Simulium* by killing its larvae:

• Each river where it breeds has to be identified, and an insecticide administered to each breeding site in those rivers once a week.

• This has mostly been done by helicopter, but also on the ground and with boats.

• The process has to be continued for at least 15 years, until all the adult worms have died out and there are no microfilariae left in skins of the population.
Larviciding by helicopter

Ground larviciding
Larviciding with boat
2. **Community directed treatment with ivermectin (CDTI).**

Ivermectin is administered to the whole population of the affected areas once a year (sometimes twice):

![Administration of ivermectin to the population](image)

- Such infrequent administration is sufficient since all microfilariae are killed, and the fertility of the female worm is diminished for a substantial period.

- As a result transmission of the parasite is cut down by 75% (but not halted completely).

- The administration is achieved done by enlisting the help of the villagers themselves.
• Even those who feel well must be treated, since although their parasite load may be low they can still be sources of infection for others.

Larviciding is the most reliable and effective way of eliminating the disease. CDTI helps the larviciding to take effect more quickly, but is not sufficient in itself to achieve control where there is a high prevalence of the disease. In situations where the parasite load is low CDTI will probably be sufficient to control the disease, but it will have to continue yearly for many years.

Since 1974 the Onchocerciasis Control Programme (OCP) has been using these strategies to control the disease in West Africa - first only larviciding, then later CDTI as well. We now have a situation where the disease is no longer a public health threat. In addition, many thousands of hectares of fertile land in river basins have been resettled.

The role of epidemiological surveillance

It is very important to know whether the control measures are working. One of the ways in which this has been done is by active epidemiological surveillance - going out into the community to find out whether the parasite is still there. OCP has selected specific villages in each river basin that was affected by the disease. The population in them is followed up every three years, to see what is happening to their parasite load. This may be done in two different ways:

• By examining the biopsies described above for every person over the age of one in the village.
• By performing the DEC skin test on all persons from 5 to 20 years of age in the village.

In both cases this is done to see how many are still carrying the parasite.

It is essential to use the same village every time. For example:

- In 1998 Village A has 12 people with positive tests, and Village B has only 5. So we would think that the situation is worse in Village A.
- However we know that in 1995 Village A had 23 positives, while Village B had only 2. This means in fact that Village A is improving nicely, but Village B is having a problem! There may be a problem in that river basin. We only know this because we examined both of the villages before.

Up to now OCP has been organising the examination of these ‘sentinel villages’ every three years. However OCP is coming to an end in the year 2002, and the health services of the 11 countries where it operates will have to take over this activity of ‘epidemiological surveillance’. Only then can we be sure the disease is detected early if it returns, which makes it possible to control it with CDTI.
Criteria for selecting villages for epidemiological surveillance

Through the years OCP has developed strict criteria for selecting villages which are suitable as ‘sentinel villages’:

- They must have had a high level of onchocercal infection in the past.
- They must be near a major blackfly breeding site.
- They must be ‘in the first line’ - that is, there may not be any other villages between them and the breeding site on the river.
- They must not be too big - the population should be between 200 and 300.
- They must have a stable population- there must not be a lot of migration in and out of the village.

It is important to know about these criteria. Although the 11 countries will continue to use the sentinel villages that OCP identified, they may have to select more as time goes on.
SIDE-EFFECTS OF IVERMECTIN

These are usually mild, and are mostly caused by the reaction of the body to millions of dead microfilariae - a sign therefore that the treatment has worked. Interestingly community members spontaneously have this perception too.

In the vast majority of cases the side-effects appear within 24 hours of the ivermectin being given, and clear up spontaneously, without further treatment, within a day or two. The most common side-effects are:

Itching

This can be very harsh but only lasts for a few days.

*It is considered severe if it stops the person from working or sleeping.* It should then be treated with an antihistamine.

Oedema

This is sometimes generalised but is usually localised in some part of the body - often the face, often like a nodule. It disappears a few days later.

*It is considered severe if it interferes with normal movement of the affected part.* Aspirin should be given.
Fever

This is usually mild and of short duration.

*It is considered severe if it lasts longer than a day.* In that case the patient should be investigated further, and the real cause (e.g. malaria) should be treated.

Pain

This can be located in any part on the body, may be localised in the swollen parts, may involve the joints, or take the form of a headache.

*If it is severe* it should be treated with aspirin.

Dizziness or syncope

This comes on fairly quickly after taking the ivermectin. The patient should be encouraged to rest, and to take extra fluids.

Diarrhoea

This is a very rare complaint.

*If it is severe* it should be treated with the usual rehydration solution.

All severe reactions must, if possible, be seen by a doctor or nurse at a health centre. There is a specific form that has to be completed in such a case. This form will be passed on to the manufacturers of Mectizan® for their records.
# Dental Formula to determine a child’s age

<table>
<thead>
<tr>
<th>MILK DENTITION</th>
<th>ADULT DENTITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8 months</td>
<td>I.I.III.IV.V.6</td>
</tr>
<tr>
<td>8-10 months</td>
<td>I.I.III.IV.V.6</td>
</tr>
<tr>
<td>12 months</td>
<td>I.I.III.IV.V.6</td>
</tr>
<tr>
<td>14 months</td>
<td>I.I.II.4.V.6</td>
</tr>
<tr>
<td>16 months (first molar)</td>
<td>1.2.3.4.V.6</td>
</tr>
<tr>
<td>18 months (canine)</td>
<td>123456</td>
</tr>
<tr>
<td>20-30 months (second molar)</td>
<td>1234567</td>
</tr>
</tbody>
</table>

- Numbers above the line refer to teeth in the top jaw, those below the line to teeth in the bottom jaw.
• The Roman numbers indicate milk teeth, the arabic numbers indicate adult teeth.

• The age estimations are accurate within 2 months for milk teeth and 1 year for adult teeth.
Equipment needed for a field trip

The following equipment needs to be taken on a field trip:

**For the census**
- 1 folding table and chair
- a pencil
- enough census forms (pre-prepared, in the case of repeat visits)
- copies of all the past records for that village, in their box

**For the isolation tent (optional) where the patches will be applied and read**
- a piece of canvas, poles, ropes and tent pegs to rig up the tent
- 1 folding table and chair
- all the equipment for preparing and applying the patches (see handout: ‘Preparing and applying DEC patches’)

**For the ivermectin treatment point**
- 1 folding table and chair
- a supply of 1000 ivermectin tablets
For personal needs

- For each team member:
  - a stretcher or foam mattress
  - bedding
  - a mosquito net and/or tents for sleeping
  - a set of eating utensils
  - personal bag with clothes, toiletries etc.

- For the team:
  - a 50 litre water container, full
  - a paraffin stove (two burners)
  - 3 paraffin lamps
  - 10 litres of paraffin
  - cooking pots, pans, knives, spoons
  - bowls for washing up
  - washing up liquid
For the vehicle

- an extra spare tyre
- a jack and wheel spanner
- basic tools for the vehicle
- 25 litres of petrol
- 1 litre of engine oil

A basic pharmacy/ first aid kit

Every team will have to see what it can get together by way of medical supplies. In countries where cost recovery is in operation it may not be possible to get any medicines at all. Here is a list of what would be useful - but anything is better than nothing:

- aspirin (tablets)
- paracetamol (tablets and syrup)
- chloroquin (tablets)
- penicillin VK (tablets and syrup)
- a broad spectrum antibiotic like co-trimoxazole or ampicillin (capsules and syrup)
- metronidazole (tablets)
• tetracycline (capsules)

• a bottle of antiseptic solution (e.g. chlorhexidine)

• antiseptic cream (e.g. povidone iodine)

• a fungicide cream (e.g. Whitfield’s ointment)

• a thiazide diuretic (tablets)

• aminophylline (suppositories and tablets)

• bandages

• gauze and cotton wool swabs

• sticking plaster
Codes for countries, villages, ethnic groups

Epidemiological evaluation activities in the original Programme area were started in Burkina Faso. For this reason, country code N°1 was assigned to Burkina Faso. The other countries were assigned the following numbers:

**Country codes**

<table>
<thead>
<tr>
<th></th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Burkina Faso</td>
</tr>
<tr>
<td>2</td>
<td>Mali</td>
</tr>
<tr>
<td>3</td>
<td>Côte d’Ivoire</td>
</tr>
<tr>
<td>4</td>
<td>Ghana</td>
</tr>
<tr>
<td>5</td>
<td>Togo</td>
</tr>
<tr>
<td>6</td>
<td>Bénin</td>
</tr>
<tr>
<td>7</td>
<td>Niger</td>
</tr>
<tr>
<td>8</td>
<td>Guinée</td>
</tr>
<tr>
<td>9</td>
<td>Sénégal</td>
</tr>
<tr>
<td>10</td>
<td>Guinée Bissau</td>
</tr>
<tr>
<td>11</td>
<td>Sierra Leone</td>
</tr>
</tbody>
</table>
Codes for villages

The coding for villages is numeric and chronological. It begins with 1 (one). A register is kept and updated for that purpose. In this register are recorded: the village code, the name of the village, the district, the country and the geographic coordinates of the village.

A village which is being evaluated for the first time will be assigned as code number, the number immediately following the last number attributed.

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A village should not have two code numbers. Therefore a number already attributed to one village should not be attributed to any other village.</td>
</tr>
</tbody>
</table>

Codes for ethnic groups

Most of ethnic groups encountered in the Programme area are already on a list established to this effect. Each ethnic group has been assigned a numeric code. Some series of numbers have been deliberately left blank for coding other ethnic groups which might be encountered in the country later on.
The DEC patch test

The way it works

Diethyl carbamayine (DEC) is a microfilaricide drug. It is still being used (given by mouth) to treat some filarial diseases, and was formerly used to treat onchocerciasis. Its use in onchocerciasis was discontinued because it caused a severe inflammatory reaction around the microfilariae that were being killed - the so-called Mazotti reaction:

- In the skin this caused intolerable itching for a few days.
- Ocular lesions often became much worse, even leading to blindness. It was this complication that led to the decision to stop using it.

DEC therefore causes a strong inflammatory reaction when it comes into contact with the microfilariae of *Onchocerca volvulus*. It is this characteristic of the drug that forms the basis of the DEC patch test:

- The DEC is mixed with a neutral cream (Nivea milk) and applied to a rectangle of filter paper.
- When this filter paper is applied to the skin, the DEC is absorbed locally.
If there are any microfilariae of *O. volvulus* in the skin nearby, an inflammatory reaction will commence within 3 hours. This can easily be seen with the naked eye after 24 hours.

**Advantages of the test**

- The great advantage is that, unlike the skin snip, it is not painful. Villagers are therefore less likely to object to the test being performed on them repeatedly.

- Another advantage is that it is more *sensitive* than the skin snip. In cases where there are few microfilariae left in the skin, the patch test is more likely to show them than the skin snip.
• It is easier to perform and to read than the skin snip. It can therefore be applied by staff after simple training.

Disadvantages of the patch test

• Although not painful, positive tests are sometimes itchy, which may be troublesome especially for small children.

• One has to wait 24 hours before reading the test (unlike the skin snip which can be examined immediately).

• The patches can come unstuck during the 24 hours that they are applied to the skin.

• If a person is infected with the parasite *Mansonella streptocerca* the test is also positive - in other words, a *false positive*. 
Preparing for a field trip

In preparing the plan for a simple evaluation round, the team leader should bear the following points in mind:

1. Check with the national oncho co-ordinator if and when ivermectin has been distributed in the villages concerned. It is no use doing epidemiological evaluation if ivermectin has been recently given out.

2. Evaluations must be conducted during the dry season. In the rainy season farmers are busy in the fields and only a few people would be available for examination. Moreover, some villages are inaccessible at that time of the year. Avoid the Ramadan period and important festivities of the area.

3. To ensure maximum collaboration by the population, village authorities should be informed of the impending evaluation and if possible of the precise date of the team's arrival.

4. The team should arrive in each village during the afternoon of the day preceding the evaluation in order to mobilize the population.
5. Even an experienced team cannot examine more than 300 people in a day.

6. A pattern of one day's travel alternating with one day of evaluation is ideal unless the evaluation of one or more villages with populations of over 300 is planned. A longer time will have to be spent in such a village.

7. Information should be collected on the accessibility of roads and tracks so that travel times can be calculated realistically.

8. In case of a follow-up evaluation, a list of all people examined during the baseline survey should be taken to the field, plus ALL their previous results. This is absolutely essential if new cases are to be indentified.
Upon arrival at a village

**Things to bear in mind**

- Villages are being asked to help with the surveillance voluntarily - they cannot be forced. The team members therefore have to be very polite and respectful throughout.

- Village authority structures are different:
  
  - Some are more *autocratic*, with the chief in council making decisions on behalf of the village. In such a case the team will expect decisions to come from the chief.
  
  - Some are more *democratic*, with decisions being made by discussion and eventual consensus in a meeting.
  
  - In some there is a *conflict* of leadership, in which case the team faces a difficult situation. If there are problems in such villages (for instance, a reluctance to cooperate) it is probably best to try for a meeting with many villagers present, as a forum to explain the programme again and ask for help.

Team members have to draw on their knowledge of the local community to decide which approach to use.
• The team has to work through the village authorities (chief, council). However the cooperation of the whole village is going to be needed. Therefore the team should use each opportunity to reach out to the villagers, explaining the programme and motivating them to take part.

• The curative service offered by the team to sick people in the village during the visit is very important:
  - It helps those in need.
  - It builds confidence in the team.
  - It improves cooperation, since villagers feel they are not just being used.

**Steps to follow**

1. As soon as the team arrives in a village, the Chief and the Secretary of the village should be contacted, together with any other persons of note (e.g. trainer or health assistant) who are present. Explain to them:
   - The purpose of the evaluation - they may be clear about that already, but it is worth making sure.
That the team will try to treat the sick. A time and place for consultations must be agreed upon - for example, at the team’s camp on both evenings while the team is in the village.

2. In most villages the key person will be the Secretary, whose responsibility it will be to inform heads of families of the impending examination and arrange for them to be present the following morning with all the members of their families.

3. Prepare a list of the families to be examined:

   - In the case of a follow-up evaluation the list will be available from the previous survey forms.

   - If the village is being evaluated for the first time (which is unlikely), collect information on the number of families, their size and duration of their residence in the village from the Secretary.

4. Give the list of families to be examined to the Secretary. Ask him to contact the heads of families included in the list, and to arrange for them to be present the following day early in the morning (latest by 8.00 a.m.) at the survey site, with all members of their family.
5. If the village is too large for the survey to be completed in one day, make sure that the families convened for the first morning do not total more than 300 individuals, leaving the rest to be examined the day after.

NOTE

- For epidemiological surveillance, it is necessary to follow up the same village for a long time.
- The whole population in the village must be examined, and it is essential to impress that fact upon everyone - the team's census clerks, the village Chief and Secretary, and the heads of families.
- If the percentage of non-attendance is too high, the data collected will be meaningless.
- An additional effort should be made to examine all individuals of the village who were examined during the baseline (meaning the first ever) survey.
- In view of the fact the procedure is a nuisance, the reasons for coming back to them every 3 years must be discussed frankly and openly.
Discussing problems with villagers

The DEC patch test is not painful, but it can be rather itchy and villagers may regard it as an unnecessary nuisance. Small children especially may not like it. On the other hand it is essential for surveillance of onchocerciasis that the same village must be examined repeatedly, so that new cases can be picked up as soon as possible.

If the team finds that they are not entirely welcome in a village, they will have to enter into dialogue with the villagers. The unhappiness will usually be verbalised by the chief of the village, when the team goes to visit him upon arrival. If it is clear that some villagers are not going to cooperate, the team should ask politely if as many villagers as possible can be called to a meeting, so that they can explain the reason for the examination again, and perhaps persuade villagers to take part after all. This is important, since it is part of the process to give ownership of the programme to the village, which is going to be necessary to legitimise the programme in the village.
Once the villagers are assembled, the team gives first opportunity to the villagers to voice their complaints and objections:

- The villagers must be given enough time to say everything they want to say, without interruption.

- The team members have to take everything that is said seriously, and not minimise it. However if the villagers have any misconception, the team can politely state the true facts as they know them.
Once the villagers have had their say, the team explains carefully why they always come back to the same village:

- This village was chosen because there used to be such a lot of onchocerciasis sufferers in it. So if the disease comes back, if there are new cases, this is where we are going to find it quickly.

- If we take another village now and find people with onchocerciasis there, we won’t know whether they are old or new cases (remember the adult worm continues to live and produce babies for 14 years).

- If we find it quickly it’s easy to stop it - but once it has gone too far it’s very hard. You can share with them a saying from Togo: ‘If you want to kill a snake you have to cut off its head’ - so if we want to kill the snake of onchocerciasis we have to do this monitoring of villages thoroughly. Imagine how awful it would be if the disease comes back, and we find out too late to stop it.

You use this kind of reasoning to try to persuade the villagers. Do not try to threaten or force them - they are not obliged to help you at all, and you want them to continue helping in the years to come.
Setting up the facilities and organising the movement

Use a shady outdoor area (e.g. under trees), or the school building, or a combination of both. You have to set up three ‘stations’, like this:

- **START** (day 1 & 2)
- Census
- **Patch applied/read** (day 1 & 2)
- **FINISH** (day 1)

- **(day 2 only)**
- Ivermectin
- **FINISH** (day 2)

- Team member
- Movement of villagers
- Movement of forms

Volume 4 – Diethyl-Carbamazine
Patch Method
The families

On the first day:

- The census clerk asks the family to approach. As soon as each family member is written up, those that will get the patch (everybody over 1 year of age) gets a piece of sticking plaster with their patch number stuck on their left wrist.

- Then they go one by one to the isolation tent for their patch (except the children under one year).

On the second day:

- The census clerk asks the family to approach. He checks the name and patch number of each person.

- Then they go one by one to the isolation tent for their patch to be read.

- Then they go to the ivermectin table, with the census form. The positive ones get the right number of tablets (unless they have a reason for not getting treated). Note that the ivermectin table is manned by whichever team member is free.
Then the whole family can go home.

**The census forms**

On the first day:

- The census clerk fills them in first, and sends them to the person applying the patch.

On the second day:

- The census clerk checks them, and sends them to the person applying the patch.

- The person applying the patch fills in the test results, and sends them to the ivermectin table.

- At the ivermectin table the number of tablets given is filled in, and the forms are sent back to the census clerk.
Census procedure: first visits

The first task in any village is to conduct a census of the entire population, broken down into residents present, residents absent and non-residents.

**First visit: procedure**

The equipment required consists of: a table, a chair, some ball-point pens, and a supply of N602 census forms. A copy of such a form is attached to this handout.

**NOTE**

An interpreter, preferably native to the village, will be needed to help the census officer cope with language problems and distinguish indigenous from non-indigenous persons.

All families that reside in the village are included. Each member of each family is included: those that are present; those that are a way (short or long term); and children under 1 year.

**NOTE**

If the trend of onchocerciasis incidence is to be properly reflected, the population studied must be stable. Therefore persons only temporarily in the village must be included and noted as such: ‘visitors’, ‘nomads’, ‘government officials’ and so on.
Each family unit is allocated a separate form or ‘data sheet’ (or forms if the number of family members exceeds the spaces allocated on one form).

After you have entered all the particulars for an individual, and before s/he passes to the isolation tent, put on his left wrist a piece of sticking plaster marked with her/ his patch test number.

**First visit: filling in the census form (N602)**

1. First identify the data sheet by filling in the boxes at the top:

   5-8: Date of survey. 9-10: Passage number.


   17-18: Section (only complete if the village has more than one section).

   19-21: Family number (this is given by the census clerk at the first visit). Note that each family has a separate sheet (or two, if it is very large).

   22-24: Ethnic group (using the OCP/EPI list of ethnic codes)

2. The body of the form consists of 14 columns, to be completed as follows:
2.1 *First column:* The patch test number - 1, 2, 3, 4 etc. (only for those individuals who qualify for, and agree to, the examination). This is allocated by the census clerk.

2.2 *Second column:* The serial/order number - 1, 2, 3, 4 etc. (for each individual in the village - those who get examined and those who do not). This is allocated by the census clerk, as the people are entered on the list.

2.3 *Third column:* Name of the person.

- In the first line write the name of the head of the family; in the next that of the first wife, followed by those of her children in order of decreasing age; then those of the second wife and her children, etc.

- All persons sharing the household's daily meal (e.g. nephew, grandchild, widow) are considered to be members of the family.

- Family relationships are indicated by a code written immediately after the person’s name. Adults are identified by their position within the family, and children by reference to their parents.
The following key is used:

- **HF** = Head of family
- **Wi** = Wife
- **Ch** = Son or daughter
- **Sib** = Brother or sister
- **FR** = Cousin
- **EN** = Nephew, niece, grandson or granddaughter
- **W** = Widow or widower
- **Pa** = Father or mother

**Examples:**

1. Coulibaly Omar HF
2. Ouattara Zenabou Wi1 (meaning: ‘the wife of 1’)
3. Coulibaly Désiré Ch1x2 (meaning: ‘the child of 1 and 2’)
4. Traoré Bernard FR1 (meaning: ‘cousin of 1’)

**2.4 25-30:** Individual number. The individual number is assigned later on at the office to enable the data to be processed by computer.

**2.5 31:** Sex. Assign code 1 for male and 2 for female. NOTE that person's name does not necessarily reveal his or her sex, and errors are frequently made in this regard. Always ask whether a child is a boy or a girl.

**2.6 32-33:** Age.

- If a birth certificate or identity paper is available, record the age indicated or the age the person or family gives you.
If not, estimate by reference to a person of the same generation who does have one. Otherwise ask the person his age and take the average between his reply and the census taker's guess.

Children's ages are determined by the dental formula (see handout).

2.7 34: Already registered. The coding is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>never registered before (first survey in the village)</td>
</tr>
<tr>
<td>1</td>
<td>already registered in the village</td>
</tr>
<tr>
<td>2</td>
<td>born since the last survey</td>
</tr>
<tr>
<td>3</td>
<td>born before the last survey</td>
</tr>
<tr>
<td>4</td>
<td>already registered in another village</td>
</tr>
</tbody>
</table>

**NOTE:** If this is a first passage, codes 1, 2 and 3 will not be used.

2.8 35: Exam. status. The coding is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>present during the visit and examined</td>
</tr>
<tr>
<td>2</td>
<td>present but refused examination</td>
</tr>
<tr>
<td>3</td>
<td>present but not examined because of old age, illness, pressure of work, etc.</td>
</tr>
<tr>
<td>4</td>
<td>absent from the village for less than a year</td>
</tr>
<tr>
<td>5</td>
<td>changed residence to another village</td>
</tr>
<tr>
<td>6</td>
<td>deceased</td>
</tr>
<tr>
<td>7</td>
<td>absent from the village for more than a year</td>
</tr>
</tbody>
</table>

**NOTE:** Codes 5 and 6 will be used only on second and subsequent passages.
2.9  36-41:

- In the case of iliac crest skin snips - first reading (30 minutes). Copy the results on form OCP/D3 onto the family form. Write the left side amount in columns 36-40, and the right side in columns 39-41.

- In the case of DEC patch tests - reading after 24 hours. Write the left side reading in column 38, the right side in column 41.

2.10  42: Iliac crest skin-snips - second reading (24 hours). This column is completed only where a skin snip that was negative on the first reading (after 30 minutes) is found positive on the second (after 24 hours). Leave blank if DEC patches are used.

2.11  43: Height.  44: Ivermectin dose.

These columns are completed only when ivermectin is indicated and has been given after microscopy.

2.12  Last column: Observations. Specific mention should be made, in particular, of:

a. The whereabouts, if known, of anyone who is temporarily absent or has left the village for good - write name of present residence.
b. Migrants who have come into the village - write ‘recent immigrant’.

c. Any person who did not present him/herself for examination but resides in the village and is known to be blind - write ‘absent-blind’.

d. Skin rashes present at the time when the patches are applied.
Census Procedure: later visits

The census officer’s work begins in the office with the preparation of updated forms (N602) to take to the field:

- You prepare the forms by filling in the particulars of all the persons whose ‘Examination status’ at the previous visit was 1, 2, 3 or 4.

- Start by copying from the previous visit’s forms the data in the third, fourth and fifth columns: ‘Name of person’, ‘25-30: Individual number’ and ‘31: Sex’.

- In the sixth column, increase the ages by the time that has elapsed since the previous visit.

- In the seventh column, ‘34: Already registered’, write the code 1 for all persons listed.

- The patch test numbers will not be assigned until the examination takes place.

NOTE: For the old villages surveyed before by OCP a computer programme called SEPT can be used to do this preparation automatically.
NOTE: The prepared forms are carefully stored in a file/jacket, which will be taken to the field. Indicate on the jacket the scheduled date of the visit and the passage number (second, third, etc.).

2. On a second passage, new registrations will include:

- Children born since the first passage.

- Women newly married into a family and coming from another village.

- Any family members overlooked on the first visit.

These persons are written down on a new line at the bottom of the family sheet of the family they now belong to.

3. Newly registered persons must be coded 2, 3, or 4 in the seventh column (‘34: Already registered’) to distinguish them from those already registered on the first visit.

4. In the eighth column, ‘35: Exam. status’, codes 5 and 6 are used for eliminating from the sample persons who have left the village or have died since the previous visit.

NOTE: Often a person coded 5 on the previous visit reappears in the village. In that case the earlier file should be corrected, code 5 being replaced by 4 or 7 depending on the length of the absence.
5. Any correction needed to the data recorded on the previous passage must be made in the field, and then brought to the attention of those responsible for the data processing. For this it is essential that the census officer keep a *notebook* in which all such corrections are recorded.

**Examples:**

- Individual number 138432 - Sex 1 on Page 1
- Individual number 138720 - Age 4 instead of 9 on Page 3
- Individual number 139002 - Exam. status 7 instead of 5 on Page 7

6. When an individual changes family (moving for example from Family 4 to Family 12):

   - Enter all his particulars on the data sheet for Family 12 and cross them out under Family 4.

   - Note the change in the respective ‘Observations’ columns: ‘Transferred from F/4’ and ‘Transferred to F/12’.

After you have entered all the particulars for an individual, and before he/she passes to the isolation tent, put on his/her left wrist a piece of sticking plaster marked with his/her patch test number.
Preparing and applying DEC patches

Preparing the 20% DEC solution

You need the following equipment:

- Nivea milk
- diethyl carbamazine (DEC) in powder form
- a chemical balance
- a measuring cylinder
- a one litre plastic or glass storage bottle (with a tight fitting lid).

The following procedure is followed:

- Using the measuring cylinder, measure out 500 ml of the Nivea milk and pour it into a beaker.
- With the chemical balance weigh out exactly 100 g of DEC powder (crystals). Add these to the Nivea milk in the beaker.
- Mix until all the DEC has dissolved:
  - you can use a laboratory rotator if you have one
  - otherwise you mix by shaking the beaker gently by hand.
- Pour the resulting mixture into the bottle, and close the lid firmly.
- Write the date of preparation on a piece of sticking plaster, and stick it onto the bottle:
If the solution is stored at room temperature in the shade it will last for 6 months.

If it is kept in the main compartment of a refrigerator it will last as long as a year.

**Preparing the DEC patch**

You need the following equipment:

- the 20% DEC solution
- a few sheets of Whatman n°3 filter paper
- pencil and ruler
- permanent marker
- scissors (suitable for paper and cloth)
- forceps
- several rolls of zinc oxide sticking plaster, width 50 mm, with perforations (the perforations are essential in hot climates, to allow the skin to breathe and remain dry)
- a small bowl.

You can do the following in advance:

- Mark out rectangles of 2 cm by 3 cm on the filter paper.
- Carefully cut out the rectangles.
- Also cut a few rectangles of zinc oxide sticking plaster, about 50 mm x 100 mm. Place them on a flat surface with the sticky side up.
However the next steps are performed immediately before applying the patches:

- Shake the DEC solution well. Pour about 50 ml into the small bowl.
- Take a rectangle of filter paper with the forceps, and dip it into the DEC mixture. Wipe off the excess on the rim of the bowl.
- Place the wet paper in the middle of one of the pieces of sticking plaster that you have prepared. Together the sticking plaster and the paper form the patch.

**Applying the DEC patches**

You need the following equipment:

- the prepared DEC patches
- cotton wool swabs
- 80% alcohol solution.

Here is the procedure you follow:

- The patches are only applied to persons from 5 to 20 years of age.
- Prepare two patches for each person, just as s/he arrives.
- Communicate with each person throughout the process:
• Greet him/her in a friendly way. If it is a small child, greet the mother or father as well.

• Ask if s/he (or his/her parent) knows what is going to happen. If s/he does not know, explain carefully:
  ❖ the aim of the test is to find out if people have the onchocerciasis parasite
  ❖ explain the procedure briefly: what you are going to do
  ❖ the procedure is painless, but the patches might start being a bit itchy after a few hours.

• Explain that s/he must try very hard to keep the patches from falling off until s/he sees you again after 24 hours. For example, s/he must try not to fasten a belt or girdle over the place where the patches are applied, since this will spoil them.

• After 24 hours s/he must return to you for the test to be read.

• Explain that if s/he is found to have the parasite, s/he will be treated immediately.

• Ask him/her to come back of the patch falls off within 3 hours.

• Thank him/her for participating.

• Ensure each person’s privacy - remember, you are asking them to expose themselves. Small children won’t mind, but teenagers might.

• Clean the skin over the middle of both iliac crests with cotton wool soaked in alcohol, so that the sticking plaster sticks well. Wait for the skin to dry.

• Carefully examine the skin where you are planning to apply the patch. If there is any lesion or rash, try to move the place where you plan to apply the patch a little to one side (but still on the iliac crest).
• If you cannot avoid the rash, or if the person has a generalised rash, make a note of it under the column ‘Observations’ on the census form N602, as follows:

- ‘local rash’ = rash on iliac crests, on site of patch test
- ‘body rash’ = generalised rash on other parts of the body

• Apply a patch in the middle of the area you have just cleaned and examined:

  - Place the long axis of the patch along the iliac crest, not across it.
  - Try to avoid the place where the person seems to place his/her belt or girdle.
  - Rub the sticking plaster thoroughly to make sure it sticks well.

• Repeat the same for the other iliac crest.
Writing up the ‘Village Report’

Note that this is only done at the very first visit to a village.

To facilitate the completion of the ‘Village Report’, the headings are listed below, and information given about the expected content under each heading. Please treat them in the order indicated below so as to standardise the presentation of the forms. Each form should be signed by its author(s).

at the top left hand:
Name of state (followed by its code number).

at the top right hand:
Name of village (followed by its code number)
Latitude and longitude.
Council/ Sub-district.

1. Date of visit
2. Purpose of visit
3. Onchocerciasis focus (basin). Name of river and/or the tributary to the river. This is a very important information. As far as possible co-ordinates must be established.
5. **Working conditions.** Where the team stays and works.

6. **Name of the village chief.**

7. **Ethnic Group(s) and sub-groups.**

8. **Population.** From available census data (showing source and date); if not available then census done by the team in the field. In either case comment on reliability of figures.

9. **History and structure of the village.** (if possible sketch a plan as an annex)
   9.1. Origin of the inhabitants, stages of settlement, contacts with the natives and/or modes of land occupancy, important events.
   9.2. Layout of the houses, inter-connection between the hamlets and the village.
   9.3. Social facilities: school, dispensary, youth clubs, etc.
   9.4. Socio-political structure: Social units (family, lineage, clan) and political organization (traditional authorities, modern authority).

10. **Activities, resources and economic problems.**
   10.1. Agriculture: land tenure system, location of farms, modes of work (men, women, children), extension service bodies (governmental or non-governmental), products harvested.
   10.2. Other activities: animal husbandry, handicrafts, fishing, etc.
10.3. Infrastructures and structures for trade: roads, markets, marketing bodies, etc.

11. **Present migrations.**

11.1. Immigration: since when? Origin and motivations, modes of settlement, numerical volume, age groups and sex concerned, envisaged duration of residence, activities of immigrants.

11.2. Emigration: since when? Numerical volume, age groups and sex concerned, destination, motivations, envisaged duration.

12. **Particular problems.**

12.1. Water: what water is used (for what) during the different periods of the year? Relation to the river and backwaters (men, women, children).

12.2. Schoolchildren: the youth in general.

12.3. Other particular problems (modes of sleep, food, dress, pleasure, etc.).

13. **Miscellaneous notes.** Questions, problems, interesting facts.

14. **Annexes.** For example the map of the area (sketch), photographs (aerial or others), age pyramid etc.
EXAMPLE OF A VILLAGE REPORT

Côte d’Ivoire (03)  Gbando (190)
- Fanni
- Bemba
Bondiali region
Bondiali district
Tenhoure council
(Gbando)

1. **Date of visit and no of passage:**

2. **Purpose of visit:**
   Detailed evaluation.

3. **Onchocerciasis focus:**
   Gbanoni or Bagoue, located about 6 km from the village, and Passe, its tributary, located about 0.5 km away.

4. **Access:**
   Road from Bondiali to Mandinani. From Bondiali, Ghando is the second village found after the Bagoue bridge. It is on the right-hand side of the road, the left-hand side of which is occupied by the Nyaoro and Nyafara hills on the northern side of which flows the Passe.

5. **Working conditions:**
   Living and working accommodation in a compound within the village, situated north of the chief’s house.

6. **Name of the village chief:**
   Manudjo Fane.

7. **Ethnic group:**
   Senoufo (code, 060), sub-group of the Nyoudougous.

8. **Population:**
   EPI enumerated 127 persons, examined 90 of them in parasitology. 55.9% of them are men and 44.1% women.
9. **History and structure of the village**

9.1 **Origin of the inhabitants:**

The inhabitants of Gbando say they have always lived in this village which suffered greatly during Samory’s passage. It was the capital of the district with the same name but lost that title to Bondiali after the war.

9.2 **Layout of the houses:**

Gbando has relatively grouped houses, but there are no sections of the village, nor do houses have clear delimitations.

9.3 **Social facilities:**

None. One has to go to Bondiali.

9.4 **Sociopolitical structure:**

Chieftaincy is the politico-administrative system. The village chief is assisted by a secretary. The household is the basic social unit, followed by the clan. There are two clans: that of the Fannis, to which the chief belongs, and that of the Bembas to which the village Secretary belongs.

10. **Economic Activities, resources and problems**

10.1 **Agriculture:**

The village chief is also the land chief. The farms are on the opposite side of the river. However, the women of Gbando have had rice farms on the banks of river Passe for a long time, up to the 1975-1976 farming season. The main crops are yam, maize, groundnuts, rice and cotton. Rice, cotton and groundnuts are cash crops.

10.2 **Other activities:**

Rearing of sheep, goats and poultry. There are cows too, all of which belong to the Fulanis.

10.3 **Trade:**

Nothing to report.

11. **Present migrations**

11.1 **Immigration:**

None.

11.2 **Emigration:**

Out of the 37 persons absent, 20 have emigrated; this represents 15.7%. The main directions are Bondiali (8), Abidjan (4), Yamoussokro (3) and Divo (2). The main age groups involved are: 10-14 (3), 15-19 (3), 20-24 (8) and 25-29 (3).
12. Particular problems:

12.1 Water: Until 1975, the village was drinking river water. Since then, it has a covered well equipped with pump.

P.D. Attiah

R.G. Brika

26 April 1986
Reading a DEC patch test

The test is read after 24 hours:

- It is essential to ensure the privacy of persons (use an isolation tent if possible).
- Remove the two patches. If there is any cream or dirt under a patch, clean it away gently with a cotton wool swab soaked in water.
- Now examine, carefully, each of the two rectangles where the patches were in contact with the skin. Do this in good light (preferably sunlight).

If the patch has already fallen off when the person arrives for the test to be read, the following procedure is followed:

- Read the test. If at least one patch is positive, record the grades. No more needs to be done.
- If both are negative, enquire carefully for how long the patch remained attached to the skin:
  - If it remained attached for 3 hours or more, no more needs to be done. Simply record the grade.
If it fell off before 3 hours, or if you are not sure, repeat the test (but note: this will not happen often - when the patches were applied you asked people to come back if it fell off soon).

The following grades are used to record the results of the test:

<table>
<thead>
<tr>
<th>Grade 0</th>
<th>the skin looks completely normal - there is no reaction, there are no papules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>there are 1-3 definite raised papules on the area that was covered by the patch</td>
</tr>
<tr>
<td>Grade 2</td>
<td>there are 4-8 definite raised papules on the area that was covered by the patch</td>
</tr>
<tr>
<td>Grade 3</td>
<td>there are more than 8 definite raised papules, but there are also some areas of normal skin</td>
</tr>
<tr>
<td>Grade 4</td>
<td>the entire skin surface that was covered by the patch is raised and oedematous - one cannot distinguish individual papules (‘peau d’orange’)</td>
</tr>
</tbody>
</table>

Note that pre-existing rashes have to be taken into account when doing the grading. These will have been noted in the ‘Observations’ column on the census form N602.

The left and right sides are read separately. The results are recorded as follows on the census form N602:

- First check the number on the sticking plaster on the villager’s left wrist, as well as his/ her name.
- In the same row as the number/ name, fill in the test result as follows:
READING A DEC PATCH TEST

- left side: column 38
- right side: column 41.

Reading a test
Verification of new cases; the migration history

1. The most important objective for the surveillance is the detection of new infections. For this reason the results of the average of the 2 patch test grades of the previous survey is compared to the present results. The following persons are treated as new infections:

- Any persons that were examined and found negative at the previous examination and are now positive.
- Children under 10 years who are found to be positive on their first ever patch test.

2. For each new infection, a migration history must be established at the same time as the result of the test becomes known, to ascertain whether the person has or has not been residing in an area where onchocerciasis transmission is known to occur. Note down:

- The person’s name.
- The person’s ‘Individual number’.
- Where the person was born.
- Any other places where s/he has lived:
  - since the last examination (if s/he had one)
  - OR for the past 10 years (if this is her/ his first examination)
- In recording a previous place of residence be sure to specify:
  - name of village
  - sub-district
  - district
  - region
  - country.

This is so that the village can be located.
3. If new infections are proven to have occurred in individuals who have never gone out of the village in question, a similar survey is to be carried out later in the surrounding non-indicator villages. This will be done later on instruction from Head Office.
Giving ivermectin during the visit

You work out the dose according to the person’s height, as follows:

<table>
<thead>
<tr>
<th>Height Range</th>
<th>Tablets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 119 cm</td>
<td>1 tablet</td>
</tr>
<tr>
<td>Between 120 and 140 cm</td>
<td>2 tablets</td>
</tr>
<tr>
<td>Between 141 and 158 cm</td>
<td>3 tablets</td>
</tr>
<tr>
<td>159 cm or more</td>
<td>4 tablets</td>
</tr>
</tbody>
</table>

Ivermectin is given ONLY to persons with positive skin snips or patch tests. However the following persons with positive results may **not** get it:

- **Children less than 5 years old.**
- **Pregnant women** (however you can give them the right dose to take home, and explain that they may only take it a week after they have delivered).
- **Women who are breastfeeding a child which is less than a week old** (however you can give them the right dose to take home, and explain that they may only take it when the child is a week old).
- **People who are very sick** (however you can give them the right dose to take home, and explain that they may only take it when they are feeling better).
Completing summary sheets of data collected

After the survey of a village has been completed the consolidated results are entered on three special forms (specimens are attached):

- The first form is for the census data.
- The second form is for the results of the parasitological examination.
- The third is the summary of new cases.

**First form: Census results**

First enter the identification information: village name and number plus date.

- In the first column write the identity numbers assigned to the families.
- In the second column write the number of individual members in each family.
- In the third to eighth columns enter the number of persons coded 1, 2 or 3, 4, 5, 6 and 7 respectively for ‘Exam. status’.
- In the last column enter the total number of persons in a family known to be blind.
- Finally, add up the figures in each column and write the totals at the bottom.
Second form: Parasitological results

1. First portion

First enter the identification information: village name and number plus date.

Then you record the results of the patch test reading by age group and sex, as in the example attached:

- Since you only test persons from 5 to 20 years of age:
  - you leave the rows ‘0-4’, ‘30-49’ and ‘>50’ blank
  - you change the row heading ‘15-29’ to ‘15-20’.

- If a person is negative for both patch tests, use the notation ‘0/0’ or just ‘0-’.

- If a person is positive for at least one patch test, record both figures, e.g. ‘/0-1’ or ‘/2-2’.

- Count the total number of persons found positive and the total examined in the age and sex sub-groups. Write the two figures in the bottom right-hand corner of the corresponding box: e.g. ‘0/17’ for ‘age 0-4 Male’.
Finally, at the bottom of the form, record:

- On the left the total number of males positive and the total number examined.
- On the right the total number of females positive and examined.
- In the middle the grand total for both sexes positive and examined.

**NOTE:** It is very easy to miscount, so always count twice and write down the result only if it is the same both times. Otherwise re-count.

2. Second portion

This portion helps you work out the raw prevalences, per age group and overall for the village.

You copy the scores from the first portion:

- those examined and those positive
- per age group and per sex
  - only for the three age groups ‘5-9’, ‘10-14’ and ‘15-20’
  - change the heading ‘15-19’ to ‘15-20’.

Then you calculate the prevalences.
Third form: New cases

Enter the identification information: date, passage number, country code, village code and name of river basin.

Enter the following data for each new case, in the respective columns:

- The person’s names.
- The person’s family number, individual number, sex and age.
- The patch test scores on the left and right sides.
- A summary of the person’s migration history:
  - Migrant Y/N: whether or not s/he is a migrant.
  - Origin: where s/he lived last, before coming to this village.
  - Year of arrival in the village: self-explanatory.
  - Observations: other relevant information, e.g. other places recently visited
# CENSUS RESULT

**Name of village:** Naga  
**Number of the village:** 105  
**Date:** 21/2/83

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<th>5</th>
<th>6</th>
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**TOTAL:** 201 91 25 25 18 11 31 0

---

*Volume 4 – Diethyl-Carbamazine*
*Patch Method*  
101
<table>
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<tr>
<th>Age</th>
<th>M</th>
<th>F</th>
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<td>0/5</td>
<td>0/4</td>
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<td>0/14</td>
<td>0/3</td>
</tr>
<tr>
<td>15 - 20</td>
<td>3/11</td>
<td>1/11</td>
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M: 3/30    T: 4/48    F: 1/18
Here are examples of the second portion of the ‘Parasitological examination results’ form, before it is filled in and afterwards:

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<th>AGES</th>
<th>EXAMINED</th>
<th>POSITIVES</th>
<th>PREVALENCE</th>
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<td>10-14</td>
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<td></td>
</tr>
<tr>
<td>15-20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>----------</td>
<td>-----------</td>
<td>------------</td>
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</table>

Village : Naga  N° : 105  Date : 21/2/96

<table>
<thead>
<tr>
<th>AGES</th>
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<tr>
<td>TOTALS</td>
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<td>3-------1</td>
<td>18</td>
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</table>
SUMMARY OF NEW CASES

Date of the survey: (month/year) /0 /5 / /9/9/8/ Passage number: /0 /4 /
State: /0 /4 / Village: /5 /2/6 /3/
Basin: Sissili

<table>
<thead>
<tr>
<th>Last and first name</th>
<th>Family number</th>
<th>Individuel number</th>
<th>Sex</th>
<th>Age</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asepua Kwame HF</td>
<td>066</td>
<td>2 6 2 2 6 5 1 64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How to store and forward data after field visit

It is of vital importance to organize a data bank for storing the information collected. Use boxes about 34 x 25 x 10 cm in size. Every village surveyed should be allocated a separate box to allow room for the results of the subsequent surveys. Write the name and code of the village on each box, e.g. ‘135’.

As the data bank may be damaged or destroyed by termites, fire, etc., make photocopies of all records and establish a duplicate bank in another building. Keep copies in the national team headquarters and one in the district/regional office.

Forward the data sheets to the person entering the data into a computer as soon as possible. This may be at district/regional level, or at national headquarters.
TEACHING AIDS

Visual aids
A visual aid is needed to show trainees what the skin looks like for each of the five stages of the DEC patch test.

Possibilities:

- showing them photographs
- making a video (but the training centre may not have a VCR and screen).
Case studies

Trainees need to learn to take the following decisions:

<table>
<thead>
<tr>
<th>1. What to do if a sentinel village no longer exists, or is no longer suitable?</th>
</tr>
</thead>
</table>

**Case study**

The epidemiological surveillance team arrives at village X. Last time they were there they noted that the cooperation of the villagers was generally poor - people were muttering a lot about having to waste two days, and about the fact that the other villages around didn’t have to put up with this. This time the chief says he frankly doubts whether many women will bother to come or to bring their children. **What do you do?** [Arrange a meeting to try to motivate them]

At the meeting you arrange to explain, very few villagers bother to attend. Those that are there make it quite clear that while they might cooperate, many will not. **What do you do?** [Can’t use that village since we need close to 100% attendance; choose another nearby]

There are three villages nearby: A, B and C. You visit them all. You find the following:

A is close to the river, has 400 inhabitants and the chief says there is very little migration in or out. He arranges a meeting with the community and they agree to help by being tested every three years with the patches. According to your past records the village was examined once in the 1970s, and the prevalence of onchocerciasis wasn’t very high. There are lots of blackflies around.
**B** has 320 inhabitants and there is a lot of blindness there. It is further from the river than **A**, in fact it is altogether more isolated. There doesn’t appear to be another village between it and the river. It was also examined once near the start of the control programme, and had a very high prevalence rate with high microfilaria counts at that time. The chief tells you that there are always blackflies around in the wet season. He says he would be very happy if you were to come around to examine his people from time to time.

**C** is almost like **B**. However our original village **X** lies between it and the river. But there are lots of blackflies, there were lots of cases when it was examined early in the 1980s and the chief is very helpful and keen. The population is about 240.

**Which village would you choose, and why?**
2. What the age is of a person who doesn’t know?

**Case study**

A woman brings a little girl to the census table. It is her niece, and the child’s mother has died. She has no idea when the child was born or how old she is. What do you do now? [look in her mouth; compare with the dental chart]

You see she has 4 incisors above, 4 below and 2 molars below as well. How old is she more or less?

**Case study**

A middle aged man Mr X arrives at the census table for the first time. He has no idea how old he is. What do you do to find out? [ask if he has any personal documents at home that he can fetch]

He says he has no documents - they got wet and spoiled in the last rainy season. What do you do now? [ask about his stage of life at important dates like Independence Year; asks if he has a friend or relative who is more or less the same age and has documents or knows when he was born]

He can remember that his first son was born a year or two before Independence Year; also he brings a cousin Mr Z who says he is two or three years older than Mr X, and whose identity book shows him to be 47 years old.
3. When ivermectin may or may not be given?

<table>
<thead>
<tr>
<th>Case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs Y is 18 years old and has a positive patch test. She arrives at the ivermectin table to get her treatment. <strong>What do you do?</strong> [Find out if she’s pregnant, or has just delivered, or is suffering from any illness]</td>
</tr>
<tr>
<td>She is not pregnant and her only child is a year old. She is suffering from a chronic vaginal discharge but feels well otherwise. <strong>Can she get ivermectin?</strong> [Yes]</td>
</tr>
<tr>
<td><strong>What do you do now?</strong> [measure her height]</td>
</tr>
<tr>
<td>She is 145 cm tall. <strong>What dose of ivermectin should she get?</strong></td>
</tr>
</tbody>
</table>
ASSESSMENT PLAN

It is very important that the trainees must learn especially the skills in this module to a high degree of competence. The plan for conducting such assessment is as follows:

SKILLS

At the end of each day’s practical the trainers meet to assess whether each trainee has mastered each skill he has to learn. This is done by using the assessment form below. Trainees who are not coping are given further opportunities to practice, under supervision. An average final skills mark of 2 or more is a pass.

KNOWLEDGE AND DECISIONS

On the last day of the course a short written or oral exam is conducted to see if the trainee has mastered essential knowledge and can make decisions with that knowledge. This should take the form of a few short questions (to assess knowledge) and a few short case studies (to assess how they use that knowledge to make decisions).
This test should cover the following areas:

- Onchocerciasis: its cause, spread, symptoms and signs, control.
- The meaning and importance of epidemiological surveillance.
- Criteria for selecting a village to be a sentinel village.
- The indications for giving ivermectin during epidemiological surveillance visits; the dose.
- How to store and forward data after a field trip.
- Determining a person’s age who does not know what it is.

As always, the test should concentrate on what trainees ‘must know’, and not on what is ‘nice to know’. A 50% mark for the test is a pass.

**DECISION TO PASS OR FAIL**

A trainee must pass both the practical and the test to pass. However the practical mark is clearly much more important than the test mark.

Finally the question is: are the trainers happy that a particular trainee will be able to perform the job, if he is sent off in a team to do it? If the answer if ‘yes’ he passes; if not, he fails and has to re-do the module at some stage.
**‘Epidemiological surveillance by DEC patch test’ module - skills assessment sheet**

<table>
<thead>
<tr>
<th>Date :</th>
<th>Trainees’ names</th>
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<tbody>
<tr>
<td>3 = excellent</td>
<td></td>
</tr>
<tr>
<td>2 = good - pass</td>
<td></td>
</tr>
<tr>
<td>1 = poor - needs more practice</td>
<td></td>
</tr>
<tr>
<td>Write the score in pencil in the relevant block. This means you can change it later when the trainee has improved.</td>
<td></td>
</tr>
</tbody>
</table>

- Prepare for the trip to the villages.
- Approach a village effectively.
- Discuss problems with villagers.
- Set up examination facilities in a village.
- Conduct a census of the village.
- Keep a notebook of corrections.
- Analyse data to find ‘new infections’.
- Verify ‘new infections’.
- Obtain a ‘migration history’.
- Administer ivermectin correctly.
- Summarise all data on 3 forms.
- Write a ‘Village Report’.
- Store and forward data sheets safely.
- Prepare a 20% solution of DEC.
- Explain the need for the test to villagers.
- Use the DEC solution to make a patch.
- Apply patch to the skin over iliac crests
- Discuss how to care for the patch.
- Read the result of the test at 24 hours.
- Record the findings of the test.

**Average mark for skills** (1, 1½, 2, 2½, 3)

**Assessors**
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