

Chapter 2

The Study Group

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2.1 The problem

In 1979–1980, when the Study Group meeting was being planned, the problem of chemotherapy of leprosy, as seen from the WHO point of view, could be analysed as follows:

Effective and practicable MDT in sight?

In chemotherapy of leprosy, two major obstacles had been clearly identified:

- Secondary and primary resistance of *M. leprae* to dapsone
The consequence of dapsone monotherapy was the development of:
 - secondary resistance of *M. leprae* (1) to the drug in lepromatous patients (by selection of pre-existing drug-resistant mutants), and
 - primary resistance in all forms of the disease (in individuals infected with resistant organisms) (2, 3).

- Persistent *M. leprae* (1)
Tiny numbers of *M. leprae* fully sensitive to antileprosy drugs had been isolated from lepromatous patients treated for many years with adequate doses of dapsone or for a few years with adequate doses of rifampicin. While the elimination of all persisters through chemotherapy had been supposed to be difficult or even problematic (4) in view of the absence of cell-mediated immunity against *M. leprae* in lepromatous patients, the results of two studies – one in Malaysia (5) and the other in Malta (6) – suggested that relapses due to persisting *M. leprae* and occurring in adequately treated lepromatous patients could be less frequent than might be feared.

Apart from the question of persisting *M. leprae* and its uncertainties, there remained the problem of recommending regimens for control programmes that could actually cope with the phenomenon of dapsone resistance. The recommendations made at the fifth meeting of the WHO Expert Committee (1), based on combinations of antileprosy drugs, had not been widely applied and thus had not provided an adequate response to the problem, at least from the operational point of view. This was a matter of increasing concern in WHO/LEP and THELEP.

Once primary resistance of *M. leprae* to dapsone had been demonstrated, surveys sponsored by THELEP and others proved beyond doubt that the epidemic of dapsone resistance was threatening to jeopardize the entire leprosy control effort (7). There was thus a clear and urgent need for combined drug regimens effective in curing patients and preventing drug resistance, and safe and practicable under field conditions.

For reasons explained earlier, the most difficult part of the problem concerned the design of regimens for multibacillary (LL and BL) patients. The whole chemotherapeutic armament available for such patients (8) was composed of just three drugs – the highly bactericidal rifampicin, plus dapsone and clofazimine, both weakly bactericidal. In addition, two interchangeable thioamides (ethionamide and prothionamide) showed some potential, displaying a bactericidal activity intermediate between that of rifampicin and that of dapsone, but important questions remained about adequate dosages and toxicity.

As the only highly bactericidal drug on the list, rifampicin had to be the backbone of all theoretical MDT regimens: it was so effective against *M. leprae* that MDT regimens of finite duration for MB patients seemed feasible, even though there were lingering doubts about the results. A few years earlier, the general opinion – based mainly on experience in tuberculosis therapy (9) – had been that, to prevent severe toxic side-effects, the drug should be given in daily doses. However, daily treatment was prohibitively expensive and difficult to supervise, and these were the main reasons for the failure of the recommendations of the fifth meeting of the Expert Committee (10). A trial begun in 1973 (11) had shown that, at a dosage of 600 mg on two consecutive days every month, rifampicin was as effective as when given at a daily dose of 600 mg. This possibility of monthly administration made rifampicin treatment much cheaper and easier to supervise and might open the way to the required regimens (11, 12; see Table 2.1).

In the field, identification of patients with dapsone-resistant *M. leprae* – either on clinical grounds or, particularly, by the mouse footpad method – was thought to be unlikely. The increasing frequency of secondary and primary resistance to dapsone meant that it was not feasible to propose regimens for MB patients containing only rifampicin and dapsone (13): a third drug was needed. In view of existing experience with use of clofazimine, and the unresolved questions relating to dosages and toxicity of the thioamides (8), THELEP chose clofazimine for their field trials on chemotherapy in lepromatous leprosy.

In March 1979, it was decided to undertake field trials of a regimen for lepromatous patients “which could be similar to regimens to be used in the future in control programmes”, based on intermittent monthly administration of rifampicin (14). The protocol for these trials was prepared by THELEP (15) and sites were selected. Trials were to be launched in Karigiri and Polambakkam (southern India) in April and October 1982 respectively, i.e. after the Study Group Meeting (16). The regimen to be used in the trials is shown in Table 2.1.

The trials included only lepromatous patients previously treated with dapsone up to smear-negativity. They were to last 2 years, after which patients were to be observed for relapse during a 5-year period. THELEP considered it unethical to plan trials of limited duration on lepromatous patients who had not yet reached smear-negativity, because the time required for treatment with any drug or combination of drugs to kill all persisting *M. leprae* was unknown (10).

In designing MDT regimens for MB patients in general, and especially for untreated patients, it was thus very difficult to decide what duration of any regimen would reduce persisters to numbers consistent with a low frequency of relapse, resulting in interruption of *M. leprae* transmission in the community (i.e. control of the disease), or even with cure of patients. The problem could be resolved only by trials with varying duration of treatment and with several years of post-treatment observation.

Dapsone monotherapy was no more appropriate for PB patients, given the increasing frequency of primary resistance to dapsone. On the other hand, it was important to use the high bactericidal activity of rifampicin against *M. leprae* to cure PB cases – the vast majority of leprosy patients – as rapidly as possible. In view of the small number of organisms harboured by these patients, there was no risk of selecting drug-resistant mutants through chemotherapy, and monotherapy with rifampicin could, in principle, be used. However, it was important to consider the risk that, at field level, some borderline (MB) cases could be misclassified as PB patients – and in these cases rifampicin monotherapy *could* select resistant mutants.

Apart from the difficulties of designing MDT regimens, it was also obvious that the future implementation of such regimens would necessitate the complete reorganization of all elements of leprosy services (10, 17). This would require substantial effort and additional resources, all sustained over a long period, yet the threat resulting from “the anarchic use of rifampicin” (Levy) meant that speed was essential – resistance to this drug had already been reported (18).

Table 2.1

MDT for MB patients – some successive regimens

| References | Regimens |
|--|---|
| 12 | <i>Rifampicin</i> , 1200 mg once a month <i>Dapsone</i> , 50 mg daily |
| 11 ^a | <i>Rifampicin</i> , 600 mg daily on 2 consecutive days every 4 weeks <i>Thiambutosine</i> , 1 g/week intramuscularly |
| THELEP Protocol for field trials (1979) ^b | <i>Rifampicin</i> , 600 mg daily on 2 consecutive days once a month <i>Clofazimine</i> , 600 mg daily on 2 consecutive days once a month <i>Acedapsone</i> , 225 mg bimonthly (injections) <i>Dapsone</i> , 100 mg daily |
| 10 | <i>Rifampicin</i> , 600 mg daily on 2 consecutive days in every 4 weeks (or monthly) (first dose supervised, second dose preferably supervised) <i>Clofazimine</i> , 600 mg daily on 2 consecutive days every 4 weeks (or monthly) (first dose supervised, second dose preferably supervised) <i>Dapsone</i> , 100 mg daily |
| 22 | <i>Rifampicin</i> , 600 mg one monthly, supervised <i>Clofazimine</i> , 300 mg once monthly, supervised, and 50 mg daily, self-administered <i>Dapsone</i> , 100 mg daily, self-administered |

^a Trial started in 1973.

^b In: *Draft report of the planning meeting for a protocol for field trials of chemotherapy of lepromatous leprosy, Geneva, 15 October 1979.*

The anarchic use of rifampicin

By the mid-1970s, rifampicin had established its reputation as the most potent antileprosy drug and its use was expanding in many parts of the world. Voluntary agencies were increasingly receiving requests for the drug. While the need for rifampicin to be used in combination with another antileprosy drug was officially recognized, fear of toxic side-effects meant that it was always strongly recommended that it should never be used intermittently but only in *daily* and supervised dosages. The daily, supervised administration of rifampicin was advocated not only by the fifth meeting of the WHO Expert Committee on Leprosy (1) in 1976, but also by ILEP in the 1977 *Heathrow report* (19), by the 18th International Leprosy Congress in 1978 (20), and in WHO's *Guide to leprosy control* in 1980 (21).

The number of proposed combinations of rifampicin with other antileprosy drugs was somewhat confusing for those in charge of control programmes. Moreover, it was clear that regimens based on daily-supervised rifampicin were impracticable and too expensive.

The greatest concern was rifampicin being given as a single drug to lepromatous patients by fieldworkers either because they were unaware of the risk of rifampicin resistance or because the drug(s) to be combined with rifampicin had not been delivered in time. Faced with this pattern of rifampicin use, WHO – and many scientists and voluntary agencies – feared the emergence and spread of rifampicin resistance, which would compromise the potential of this potent antibiotic for improving leprosy control at a time when the development of new antibiotics highly active against *M. leprae* was not foreseen.

A strong demand for WHO recommendations

Both the reputation of rifampicin and its uncontrolled use grew with time. As a result, governments and voluntary organizations came increasingly to expect clear, applicable, and authoritative recommendations from WHO for MDT in leprosy. Recommendations for regimens that would be practicable under field conditions were needed, probably based on the monthly administration of rifampicin – commonly used by clinics – to allow reliable supervision of ingestion.

The urgent need of governments for recommendations from the Leprosy unit at WHO headquarters (Geneva) was underlined by the fact that two WHO regional meetings – in the South-East Asian region in 1980 and in the Western Pacific region in 1981 – discussed and made recommendations on various MDT regimens.

Recommendations from WHO were also eagerly awaited by NGOs, notably ILEP; this was demonstrated on a particular occasion in early 1981. At the time, the ILEP Medical Commission was planning a meeting at which it was intended to issue recommendations on combined chemotherapeutic regimens for field use. Following correspondence between members of the ILEP Medical Commission, the Chairman of the THELEP Steering Committee and Chief, LEP, the meeting organizers agreed to delay the issue of their recommendations until WHO had made its own.

To complicate matters further, MDT regimens involving rifampicin and Isoprodian[®] – a fixed combination of dapsone, protionamide, and isoniazid – had been promoted since the early 1970s by Freerksen and his colleagues (6). These regimens were based on experimental methods and interpretations whose value was not generally accepted, and their promotion risked causing further confusion for leprosy workers and health authorities in some countries.

The response from WHO

It was clear to WHO/LEP that putting an end to the anarchic use of rifampicin and responding to the general demand for guidance made it crucial to issue recommendations for MDT regimens *for immediate use*. At the same time, it was recognized that, whatever MDT regimens were selected, their implementation would require several years of preparation at all levels before any patient would start to benefit. Meanwhile, the anarchic use of rifampicin and the risk of resistance to rifampicin (and to both rifampicin and dapsone) would certainly continue to increase.

While this delay between the issue of recommendations and implementation was to some extent inevitable, WHO/LEP was also deeply concerned that, to comply with general ethical considerations, the relevant WHO authorities would advise that established WHO practices should be followed, i.e. the validity of the proposed MDT regimens should be demonstrated in clinical trials before the regimens could be recommended for field use. This would entail a further delay – of as much as 9 years – and risked further compromising the potential usefulness of rifampicin. The way in which this particular difficulty was dealt with is described in Chapter 6.

In 1981, in close collaboration with the THELEP Steering Committee and the Scientific Working Group, WHO/LEP organized a meeting of the Study Group on Chemotherapy of Leprosy for Control Programmes.

2.2 The meeting

Design of the meeting

It is useful to note here that, while WHO Expert Committee meetings deal with all aspects of a disease (or programme), Study Group meetings are concerned only with a specific or limited aspect of the disease/programme. To discuss chemotherapy of leprosy, it was thus appropriate to convene a Study Group meeting. In addition, no more than about 10 participants are generally invited to WHO Expert Committee meetings, a Study Group meeting can be much larger – and requires planning only a year in advance, as opposed to two years for an Expert Committee.

In view of the failure of the recommendations made by the fifth meeting of the WHO Expert Committee on Leprosy, WHO/LEP was anxious to maximize the chances of developing a set of recommendations on MDT for leprosy control that would be both effective and practicable – and hence readily acceptable by all concerned (patients, leprosy workers, scientists, and voluntary organizations).

Clearly, the scientific knowledge required for designing the type of regimen(s) needed, or at least adapting the regimen already designed for field trials in lepromatous leprosy, was to be found within the THELEP Scientific Working Group. It was also expected that recommendations seen as emanating from a group with the expertise and reputation of THELEP would be readily accepted by all users.

In view of the operational difficulties that had made it impossible to implement the recommendations of the fifth meeting of the Expert Committee, it was deemed crucial for the Study Group to include a significant number of experienced leprosy control workers. These participants would be able to explain to the researchers the operational constraints and practical problems to be expected at the various organizational levels of control programmes based on MDT. To ensure representation of a wide range of views in discussions, WHO/LEP considered that it was preferable to have a rather large number of participants. A total of 25 were invited, approximately half from the research side and half from the control side, of whom two were unable to attend the five-day meeting. The following details are given in the appendices to this section:

- the proposal for the Study Group meeting submitted by WHO/LEP (Appendix 1)
- meeting participants (Appendix 2)
- the provisional agenda (Appendix 3).

Progress in discussions

The Study Group meeting was held at WHO headquarters in Geneva. Professor M.F. Lechat chaired the meeting, Dr K. C. Das was Vice-Chairman, and Dr M. Christian the Rapporteur. As Chief of LEP, the author was responsible for organizing the meeting and acted as Secretary of the Study Group.

The meeting agenda (Appendix 3) included reports on leprosy control programmes in four countries of special significance, followed by information papers on the most important subjects for discussion. In addition, a working paper entitled *Points for discussion on chemotherapy in leprosy control programmes (10)* had been prepared by C. Vellut and M.F.R. Waters to summarize the information papers and to enlarge on the essential topic of MDT regimens that might be suitable for various categories of patients. Finally, two days of group discussions were planned, to deal with the points on which it was essential to reach conclusions.

The Vellut & Waters working paper was an excellent, detailed, and comprehensive document and an ideal basis for discussions. Its main points may be summarized as follows:

- Regimens for eight categories of MB patients were discussed. The regimen for “newly diagnosed, untreated multibacillary patients” is shown in Table 2.1. It was similar to the regimen for THELEP field trials, except that the regimen proposed by Vellut & Waters did not include injections of acedapsona: because this drug is only bacteriostatic, not bactericidal, it did not meet the requirements for inclusion in an MDT regimen of limited duration (8).

Since the duration of combined chemotherapy necessary to kill all *M. leprae* persists in MB patients (who have little, if any, cell-mediated immunity) was unknown, the working paper was very uncertain about the appropriate duration of the regimen. For discussion, it proposed 2 years, 5 years, or 2 years followed by dapsona monotherapy up to smear-negativity followed by a further 2 years of triple drug therapy, but other possibilities were not excluded.

For all other categories of MB patients, the standard regimen – or a close alternative – was proposed; for patients refusing clofazimine, for example, the same regimen with clofazimine replaced by ethionamide was proposed.

For MB patients “under treatment with dapsone monotherapy with apparent success” but still smear-positive, the same standard regimen was proposed. It was suggested (subject to discussion) that the triple drug therapy be continued until the patient had become smear-negative and had remained negative for 2 years thereafter, “at the end of which time treatment should be stopped”.

- For PB patients, it was suggested that a regimen of dapsone, 100 mg daily, with rifampicin – 600 mg on the first two days of treatment and 600 mg once every four weeks (supervised) thereafter – would be appropriate. However, the duration of treatment proposed for discussion was rather uncertain (6, 8, or 12 months).

The final section of the working paper, concerning the introduction of MDT into leprosy control programmes, drew attention to:

- the need for acceptance of MDT by all concerned, i.e. patients, health personnel, and administrators;
- the importance of health education;
- the need to train all categories of personnel in the new methods, including bacteriological examination;
- treatment activities, including post-MDT follow-up of PB and MB cases; and
- managerial and logistic aspects – drug procurement and delivery records, human and financial resources.

Discussions progressed smoothly in the formal setting of the meeting, but many important topics were also addressed in the more informal context at participants’ hotels. Indeed, it was the author’s impression that consensus on at least one essential point (possibly the standard regimen for MB patients) was reached during one of these “extramural” sessions.

The Study Group appeared pleased with the outcome of the meeting, feeling that they had gone as far as they could in reaching a proper balance between the relative simplicity of the proposed regimens and the likelihood of satisfactory efficacy.

The final report (22)

The final report ran to a total of 33 pages in the English version and dealt clearly and concisely with the following topics:

1. The various aspects of the overall problem – primary and secondary dapsone resistance, secondary resistance to other bactericidal antileprosy drugs, persistence of *M. leprae*, difficulties in implementing the therapy recommended in the fifth report of the WHO Expert Committee on Leprosy, and the present situation.
2. Drugs for multidrug regimens, with a clear demonstration of why only dapsone, rifampicin, clofazimine, and ethionamide/protionamide should be considered for inclusion in multidrug regimens.

3. Recommended chemotherapeutic regimens
 - Treatment of multibacillary leprosy:
 - at least 2 years’ duration and, wherever possible, up to smear negativity
 - recommended standard regimen:

| | |
|-------------|--|
| rifampicin | 600 mg once monthly, supervised |
| dapsone | 100 mg daily, self-administered |
| clofazimine | 300 mg once monthly, supervised, and 50 mg daily self-administered. |
 - Treatment of paucibacillary leprosy:
 - recommended standard regimen:

| | |
|------------|----------------------------------|
| rifampicin | 600 mg once a month for 6 months |
| dapsone | 100 mg daily for 6 months |
4. Operational aspects – case detection, laboratory facilities, drug delivery, medical care, records and follow-up, health education, equipment and drugs, human and financial resources, planning and evaluation, and training.
5. Research needs.

The most important points made in the report were as follows (the first is a quotation from the report).

- “Further delays in implementing well-planned and well-executed programmes of combined chemotherapy could result in a catastrophic situation, with a further increase in the prevalence of dapsone resistance and the development of multidrug resistance.”
- Clear-cut definitions of MB and PB leprosy in relation to the Madrid and Ridley–Jopling classifications. When the bacteriological status was available, PB leprosy included all patients with bacteriological index <2 according to the Ridley scale at any site.
- Precise composition of regimens recommended for MB and PB leprosy and a precise duration of the regimen for PB leprosy. For MB leprosy, it was recommended that “combined therapy be given for at least two years and be continued, wherever possible, up to smear negativity”.
- Definition of priorities for introducing MDT for various categories of PB patients (who represented the largest number of leprosy cases).
- In the light of the changes to be introduced in most aspects of leprosy control activities for the implementation of MDT, a comprehensive list of the operational requirements corresponding to the newly recommended chemotherapy.

Clearly, the most essential feature of the report was the standard regimen recommended for MB patients. It can be seen from Table 2.1 that the Study Group had modified the standard regimen proposed for discussion in the Vellut & Waters working paper in two ways:

- Simplification – only one 600-mg dose of rifampicin monthly, instead of two (on consecutive days). The Group had probably judged this reduction in dosage acceptable in view of the existing evidence of the effect of a single 600-mg dose of rifampicin over several weeks.
- Adaptation of clofazimine dosage – to increase its killing effect on rifampicin-resistant *M. leprae* mutants, the monthly dose of clofazimine was supplemented by daily doses.

The last chapter of the report, on research needs, identified relevant areas where important knowledge was lacking – mainly in relation to optimal doses of clofazimine for monthly and daily administrations and to the activity of ethionamide/prothionamide on *M. leprae*. On the whole, however, regimens recommended by the Study Group were based on existing knowledge supplemented by reasonable extrapolations, and thus had a good chance of responding to the requirements. The Study Group's most important conclusion with respect to research needs was that "A particularly useful study ... would be an investigation into the effectiveness of the recommended regimens under varying operational conditions. Other needs will be met by the ongoing or planned research sponsored by THELEP."

In addition to scientific aspects of MDT regimens, the Study Group was much concerned with the problems posed by the considerable increase in the cost of leprosy services resulting from the introduction and implementation of MDT. Participants were aware that the cost of the reorganization of leprosy control services required in advance of the implementation of MDT would greatly exceed that of the drugs to be used. As a consequence, MDT coverage would have to be expanded in a phased manner, allowing the increase of expenditure to be progressive and, it was hoped, affordable. In LEP, it was thought that the global level of annual budgets of voluntary organizations (about US\$ 50 million in total for ILEP member associations) would be sufficient to cover the additional financial input that MDT implementation would require.

In conformity with WHO regulations, the report of the Study Group on Chemotherapy of Leprosy for Control Programmes – then already printed and ready for distribution – was reviewed and endorsed by the WHO Executive Board on 17 May 1982 (23). This was its official "date of birth".

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Appendix 1

Study Group on Chemotherapy of Leprosy for Control Programmes

Geneva, 12–16 October 1981

1. Background and justification

1.1 The last meeting of the WHO Expert Committee on Leprosy (October 1976) made recommendations on chemotherapeutic regimens for leprosy and, in particular, lepromatous leprosy. Since then, there has been no significant application of the recommended use of multidrug regimens for lepromatous leprosy in large-scale control programmes.

1.2 The applicability of some of the regimens then recommended appears to need review,

1.3 More information on drugs and drug regimens has been accumulated since the last Expert Committee meeting. In particular, the possibility of using drugs like rifampicin and clofazimine intermittently has gained acceptance, and this could well be a solution to the main difficulties encountered in the application of the Expert Committee's previous recommendations.

1.4 There is a need to review therapy of paucibacillary leprosy and to consider "fixed duration" treatment.

1.5 There is a need to look into further research possibilities in terms of clinical trials and operational studies.

1.6 Recently, recommendations have been made in WHO regional meetings, i.e. SEARO Intercountry Consultative Meeting on Leprosy, 2–7 July 1980, and the WPRO Working Group on Drug Policy and Operational Research in the Leprosy Programme, Manila, 16–18 February 1981. These recommendations need review in order to establish proposals for a shortlist of the most effective and practicable regimens.

1.7 Also, the International Federation of Anti-Leprosy Associations has recently made its own recommendations. It appears necessary to review these proposals and maintain WHO technical leadership in this area.

2. Objectives of the meeting

2.1 To review the information on problems related to chemotherapy and on chemotherapeutic regimens for leprosy, which has accumulated since the fifth meeting of the WHO Expert Committee.

2.2 To recommend alternative multidrug regimens for dapsone-treated and new multibacillary cases in control programmes.

2.3 To recommend regimens for clinically suspected dapsone-resistant multibacillary cases in control programmes.

2.4 To recommend regimens for paucibacillary cases in control programmes.

2.5 To identify further research needed in clinical and operational aspects of chemotherapy of leprosy.

3. Participation

A great deal of scientific knowledge on drugs for leprosy and the rationale for designing drug regimens exists within the THELEP Scientific Working Group. This expertise is, of course, essential. On the other hand, those in charge of control programmes are well acquainted with the practical problems encountered in the field. In order to achieve the best possible interaction between both types of experts, it is proposed to have an equal number of participants from both sides.

Also, because epidemiological and socioeconomic conditions have implications in treatment delivery, a proper balance has to be kept between representatives from areas with different epidemiological and socioeconomic conditions. In total, it is planned to have about 25 participants plus secretariat (members).

4. Report

It is expected that the report of the Study Group will include recommendations of practical applicability in all leprosy control programmes, and therefore its publication in the Technical Report Series will be requested.

Appendix 2

Study Group on Chemotherapy of Leprosy for Control Programmes: List of participants

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Dr M.F.R. Waters, National Institute for Medical Research, London, England (*Consultant*)

* Unable to attend:

Dr M. Adhyatma, Director General for Communicable Diseases, Department of Health, Jakarta, Indonesia; Dr C.C. Shepard, Chief, Leprosy and Rickettsia Branch, Centers for Disease Control, Atlanta, GA, USA.

¹ Now Myanmar.

¹ Country name correct at the time of the Study Group meeting.

Appendix 3

Study Group on Chemotherapy of Leprosy for Control Programmes: Agenda

Monday 12 October 1981

- 09:30 Opening of the meeting
 Scope and objectives of the meeting (Dr Sansarricq)
- 10:00 Review of country leprosy control programmes in relation to chemotherapy
 Country reports:
 – India (Dr Das)
 – Burma³ (Dr Kyaw Lwin)
 – United Republic of Tanzania (Dr N'kinda)
 – Brazil (Dr Opromolla)
 General discussion and comments on other problems related to chemotherapy
 in leprosy control programmes in other countries
- 14:00 Information papers:
 – Dapsone resistance (Dr Desikan)
 – Microbial persistence in mycobacterial infections (Professor Grosset)
 – Available drugs (Dr Ellard)
 – Design of regimens (Dr Levy)

Tuesday 13 October 1981

- 09:00 Information papers (continued):
 – Operational aspects (Dr Christian)
 Working paper:
 – Points for discussion on chemotherapy in leprosy control programmes (Dr
 Vellut and Dr Waters)
- 14:00 Group discussions:
 – Group 1: Regimens for new and previously treated multibacillary cases
 – Group 2: Regimens for resistant multibacillary cases
 – Group 3: Regimens for paucibacillary cases

Wednesday 14 October 1981

- 09:00 Preparation of Group reports
14:00 Discussion on the first part of the final report of the meeting

Thursday 15 October 1981

- 09:00 Discussion of Group reports
14:00 Discussion of the strategy for implementation of regimens and research needs

Friday 16 October 1981

- 10:00 Discussion and adoption of the final report of the meeting

³ Now Myanmar.