# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Uses and benefits of Standard Treatment Guidelines (STGs)</td>
<td>2</td>
</tr>
<tr>
<td>Reasons for developing the MSTG</td>
<td>2</td>
</tr>
<tr>
<td>MSTG 1 (First edition)</td>
<td>5</td>
</tr>
<tr>
<td>Activities prior to development of MSTG 1</td>
<td>5</td>
</tr>
<tr>
<td>Decision to develop MSTG</td>
<td>5</td>
</tr>
<tr>
<td>Preparation</td>
<td>6</td>
</tr>
<tr>
<td>Printing</td>
<td>8</td>
</tr>
<tr>
<td>Distribution</td>
<td>11</td>
</tr>
<tr>
<td>Methods of distribution</td>
<td>12</td>
</tr>
<tr>
<td>Introducing the guidelines</td>
<td>12</td>
</tr>
<tr>
<td>MSTG 2 (Second edition)</td>
<td>15</td>
</tr>
<tr>
<td>Review of MSTG 1 and development of MSTG 2</td>
<td>15</td>
</tr>
<tr>
<td>Editing and preparation for printing</td>
<td>16</td>
</tr>
<tr>
<td>Printing</td>
<td>17</td>
</tr>
<tr>
<td>Distribution</td>
<td>18</td>
</tr>
<tr>
<td>Introducing the new edition</td>
<td>20</td>
</tr>
<tr>
<td>Prescriber training workshops</td>
<td>20</td>
</tr>
<tr>
<td>Feedback</td>
<td>20</td>
</tr>
<tr>
<td>Use in drug utilisation and prescription monitoring</td>
<td>21</td>
</tr>
<tr>
<td>Future plans</td>
<td>21</td>
</tr>
<tr>
<td>Training workshops</td>
<td>21</td>
</tr>
<tr>
<td>Development of curricula for formal health training courses</td>
<td>22</td>
</tr>
<tr>
<td>Review of MSTG 2 and preparation of the next edition</td>
<td>22</td>
</tr>
</tbody>
</table>
Appendices...............................................................................................................................23

1. Background publications used in preparation of the guidelines................................................24

2. Sample page of MSTG 1 (December 1988) first draft ..............................................................25

3. Sample page of MSTG 1 (May 1989) second draft.................................................................26

4. Sample page of MSTG 1 (July 1989) third draft ...................................................................27

5. Sample page of MSTG 1 (November 1990) final version.......................................................28

6. Technical notes on MSTG 1..................................................................................................29

7. Cover page of MSTG 1........................................................................................................31

8. Modification form for MSTG 1..........................................................................................32

9. Sample page of MSTG 2 (July 1993) final version...............................................................33

10. Technical notes on MSTG 2.............................................................................................34

11. Cover page of MSTG 2.....................................................................................................36

12. Comparison table for MSTG 1 and MSTG 2......................................................................37

13. District training workshops to introduce MSTG 2 and MPC.............................................38
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Lilongwe, Malawi
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Introduction

National drug and therapeutic information documents which include:

- Essential drugs lists, which list those drugs that are considered basic and indispensable for treating commonly occurring conditions;

- Standard treatment guidelines, which give recommended treatment regimes for treating these conditions;

- National formularies, which provide prescribing and dispensing information for each of the drugs on the essential drugs list; and

- Patient management guidelines, which give advice on diagnosis, history-taking, patient examination and other aspects of patient management;

are vital reference texts for any country or health institution striving to rationalise the treatment of diseases and utilisation of the drugs needed.

Such rationalisation is obligatory if optimum use is to be made of the scarce resources, in terms of health workers, drugs and medical supplies, budget and consultation time, of many countries, particularly in less developed parts of the world.

The development of national drug and therapeutics documents is highly recommended as it provides several significant advantages over texts available from elsewhere. These include:

- national documents can be made much more appropriate and relevant for use within the locally prevailing clinical and therapeutic practices;

- involvement of national experts in reaching a broad consensus, and in production of the texts, gives the documents national credibility and enhances the likelihood of them being widely adopted and used.

This report describes in detail the process of production of one such text, the Malawi Standard Treatment Guidelines (MSTG). Although this is only one kind of drug and therapeutics information publication, and was produced for use in a specific country, many of the steps followed, experience gained, problems faced and lessons learned in the process are applicable to production of similar documents in any (developing) country. Important notes on lessons learned during production of the MSTG are given in the text in the form of Tips.
Uses and benefits of Standard Treatment Guidelines (STGs)

STGs summarise recommended treatments for commonly occurring conditions. They should represent a consensus on what is regarded as the most appropriate treatment for each condition. The aim of providing such information is that treatments become standardised throughout a health system and that prescribing for the conditions covered is rationalised.

Widespread adoption and application of standardised treatments also make it possible to use these, together with morbidity and patient attendance data, as a basis for quantification of drug requirements.

STGs are useful to prescribers as ready reference texts for consultation during the course of daily clinical work and also as resource materials for basic and in-service prescriber training.

Reasons for developing the MSTG

The reorganization, further development and strengthening of the national pharmaceutical system in Malawi is part of a large World Bank programme of assistance to the social sector. To implement the pharmaceutical component, the Malawi Essential Drugs Programme (MEDP) was established in 1988 as an integral part of the activities of the Ministry of Health Pharmaceutical Services Department, with WHO as the executing agency. Funding support was also provided by the Netherlands Government.

A most important part of the activities to be implemented under the MEDP is human resource development, both of pharmaceutical and clinical personnel. The focus of activities for the latter is aimed at improving therapeutic skills and drug utilisation practices.

The production of up-to-date reference materials, relevant to the Malawi situation, was recognised as a key requirement in the training, both formal and in-service, of these cadres. Of these reference materials, a set of therapeutic guidelines or standard treatment guidelines was regarded as being of prime importance.

Although several excellent therapeutics/prescribing reference materials are available from other countries, e.g. British National Formulary (BNF), Essential Drugs List for Zimbabwe (EDLIZ), the development of a national guide for a particular country has many distinct advantages:

- treatments in the guide refer only to drugs on the national essential drugs list (in our case, the Malawi Standard Drug List). This may not include many of the drugs available in developed countries but may include others, such as those for treatment of tropical conditions;

- therapies can be tailored to suit local experience, practices and requirements. For example, in Malawi:

  - the recommended route for administration of rabies vaccination is intradermal (i/d) because of the significant savings possible compared with intramuscular administration (i/m). In the USA the i/m route is still recommended.

  - due to the high level of malarial resistance to chloroquine and the high cost of other alternatives, oral sulfadoxine/pyrimethamine combination (SP) is now the recommended first line treatment for uncomplicated malaria. It is made freely available
from all drug outlets without prescription. In most other countries, this drug is only available on prescription;

- it may be possible to ensure the availability of the locally produced guide to all prescribers at low unit cost, compared with the costs of procuring texts from abroad;

- by involving local prescribers, pharmacists and health administrators in the production of the guide, a high level of consensus may be reached. The guide thereby acquires local credibility and authority and prescribers are much more likely to accept it and be committed to using it;

- applicability to the local health situation can be ensured by only including information relevant to national morbidity patterns and treatment practices;

- local production of the guide permits the establishment of systematic review and updating procedures.
MSTG 1 (First edition)

Activities prior to development of MSTG 1

In August 1988, as part of the assistance to the MEDP, WHO’s Action Programme on Essential Drugs (DAP) organized an international seminar in Malawi on drug quantification. The seminar was based on quantification methodologies developed by DAP. This was immediately followed by a drug quantification exercise for Malawi carried out by nationals and international consultants. The preparation for this quantification involved, *inter alia*, carrying out a detailed review of prescribing practices, review by the National Drugs Committee (NDC) of standard treatment schedules adopted by other countries and modification of these during the workshop to suit Malawi requirements.

A quantification spreadsheet (QUANTED) which included abbreviated treatment schedules had been prepared for DAP and was adapted for use in Malawi during the quantification seminar. The treatment schedules in this were amended for local applicability according to the information in a local MOH publication.

Although information on morbidity patterns in Malawi was partly available, through monthly reports or tick sheets submitted by health units, this was incomplete and often inaccurate. Coupled with the unavailability of standard treatment protocols, this meant that morbidity-based quantification could not be done with any reliability or accuracy.

Decision to develop MSTG

Stimulated by the observations and outcome of the quantification seminar, the Ministry of Health (MOH) decided that there was an urgent need to systematically review and standardise common treatments. The aim was to rationalise prescribing practices in order to:

- improve the overall quality of prescribing;
- reduce the waste of drugs due to inappropriate prescribing habits;
- enable more accurate estimation of drug requirements, thereby facilitating efficient and effective drug procurement.

The MOH also decided that, following the development of the MSTG, a series of prescriber training seminars would be organized to introduce prescribers to the publication, orientate them on its benefits and correct use and promote its routine application in clinical practice.

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Preparation

The actual development of the MSTG as a ready reference, therapeutic guidelines booklet, covering around 100 of the most common presentations, commenced in late 1988. The starting point for this was QUANTED (see above). Background publications used are listed in Appendix 1.

This first draft, which was still in tabular form (see Appendix 2), was sent out in December 1988 to all 74 public sector medical practitioners in the country. A covering letter requested comments on the treatment regimes, document design, presentation of dosage information and suggestions on other conditions to be included.

The 103 conditions covered were each subdivided according to adults/children and to level of severity. Information given was the name of the drug(s), the dose form and the dose regime. A rather low (approximately 30%) response rate was obtained.

Comments centred around:

- clarification of the classification of conditions into severities;
- non-acceptance of the ICD9 (International Classification of Diseases) coding system used for the diseases covered;
- addition of obstetric conditions;
- dosage for children by weight and not age (range).

By May 1989, comments were incorporated into a revised (second) draft which was in non-tabular form (see Appendix 3). For this the files had been converted from spreadsheet format into a database using dBase IV®. In this version the now 98 conditions covered were listed alphabetically.

Instead of using the term “severities”, “recommended treatment” was used to indicate the normal (i.e. 1st line) treatment. When appropriate, an “alternative treatment” was given in case the recommended treatment failed to show results or was justified by the gravity of the case. For example:

Asthma
Recommended treatment in adults:
aminophylline tabs 100 mg: 1 x 3 x 30 days

** Alternative **:
aminophylline amp 25 mg/ml, 10 ml: 1 amp IV salbutamol inhaler: two puffs every 6 hours

A table of contents listed conditions alphabetically. For a few conditions, a brief (one line) treatment guidance note was given. For example:

Animal bites: “Never suture a bite wound of any kind”;
Caries, Toothache: “The only definitive treatment is surgical intervention”;
Convulsions: “Protect patient from injury in side position and prevent tongue bite”.

Tip #1
Steps should be taken to stimulate the maximum response to material distributed for comment
These may include:
- active written or telephone follow-up of respondents;
- inclusion of a stamped addressed return envelope with mailed material sent for review;
- workshops to discuss the material developed for review;
- requesting key specialists to develop or review specific areas. If necessary this could be done on a contract basis.
The second draft was sent out for further comments to a group of 33 senior clinicians and health professionals. A covering letter included with the draft summarised the work done so far and proposed that the final document be produced in a smaller format so that it could easily fit into the pocket and thus be readily available for routine reference during daily clinical work.

A third draft, incorporating any comments received, was reviewed by the National Drugs Committee (NDC) in July 1989 (see Appendix 4). Several further amendments were made, such as addition of new conditions.

Approval in principle was given by the NDC and MOH to the editor to proceed with arrangements for printing, subject to incorporation of the agreed changes and verification of paediatric doses with the relevant specialists. Further editing and formatting was done to prepare the camera-ready material for printing. MultiMate Advantage II® was used to prepare text which was then transferred into Aldus Pagemaker® (desk-top publisher) for final enhancement. Microsoft Excel® was used for tables.

However at this stage the MOH, guided by senior clinicians, had second thoughts about the development process followed thus far and called a further meeting to discuss the draft. Reasons for this were mainly related to the sensitivities of the medical community and included:

- lack of a wide enough consensus between clinicians, national health experts and MOH administrators regarding:
  - the need for target groups and objectives of the prescriber training activities which would follow the publication of the MSTG;
  - the content and format of the MSTG;

- harmonisation of the MSTG with other drug information documents including the Malawi National Formulary, a new edition of which was also being prepared.

Tip #2:

Decide as early as possible, whether to prepare a camera-ready publication yourself and if so, on the computer software to be used

If possible it is much better to produce a camera-ready (i.e. in a form ready for printing) final product yourself, using a word-processor, spread-sheet and if required desk-top publishing programmes. This allows total control over the design and layout of the publication, and significantly reduces direct publication costs.

If this is not possible, it may be necessary to pass on drafted material and requirements for tables, artwork, etc. to a publisher for preparation of the final document. This can be very expensive and time-consuming. It will also be necessary to liaise very closely with the publisher throughout the process in order to ensure that the layout, etc. are exactly as originally intended.

The MSTG started off as a spreadsheet, was converted to a database and finally transferred to desk-top publishing software. Each of these changes takes a significant amount of time and effort to complete. Preparation of the material at an early stage in a size and form similar to that ultimately intended probably leads to improvement in the presentation of the content and the overall design and layout of the document.

For the second edition (MSTG 2) a change was made from desk-top publishing to word processing software (Microsoft Word for Windows®). This provided equally good text enhancement features (e.g. bullets, boxes and shading) but was much easier to use and facilitated indexing.
It was in this context that a special National Drugs Committee meeting was held in December 1989 to ensure final consensus among senior clinicians. Numerous, although mainly minor, changes were made to the draft of the STG. These included:

- standardisation of dose regime statements in the form: generic drug name, dose size, route of administration, dose frequency and duration of treatment;
- dose forms were deleted and the route of administration indicated instead;
- addition of prescriber guidance points to several treatments - these consisted of brief statements of advice on management of the condition.

The process of review simply involved starting with the first condition and working through each page in sequence asking for comments from the whole Committee. This was a comprehensive but rather lengthy and inefficient process.

Following the meeting, agreed amendments were incorporated, final formatting and layout completed, and remaining sections added. The latter included the cover page, table of contents, foreword, preface, modification form and paediatric weight/age conversion charts. Certain treatments were re-drafted following the meeting by nominated members of the Committee or identified specialists. Submission of these for incorporation in the final document took over six months. It became clear that, in some cases, getting draft new material was much more difficult than obtaining comments on existing material. It was not until November 1990, some 11 months after the NDC meeting, that the document was in camera-ready form for printing (see Appendix 5).

For technical notes on MSTG 1, see Appendix 6.

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Tip #3:

A wide consensus must be reached with all interested parties in the medical and pharmaceutical establishment.

This means involving representatives of a wide range of interest and expertise, including senior policy-makers, senior clinicians (especially at university level) and all levels of the intended target audience, in the development of the publication. These should be fully briefed, at a national workshop, on the aims of the publication and the benefits expected from its use.

It is important that all involved are clear from the beginning that treatment guidelines should be used together with clinical judgment, are not as restrictive as often perceived, and that while the treatment protocols should represent the best practice for most patients, individual patients may still require different treatment.

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Tip #4:

A systematic process of preparation and review of the document by the national drugs committee should be followed, making optimal use of the time and expertise available.

The first draft of the document should be prepared by an individual or small committee appointed by the NDC. Sections of this should be sent out for comment to the appropriate specialists. The draft, together with any comments received, should then be distributed to the members of the national drugs committee well before a special meeting called to review the material and agree on the final version. Additional members should be co-opted for the meeting, as necessary, to ensure that all the required expertise is available. This minimises the extent of any follow-up which may be needed after the meeting to seek advice or confirmation on specific issues.

It is recommended that the document be split into several sections to be reviewed by smaller working groups with specific expertise. These then report their findings and recommendations to a plenary meeting for further discussion and final agreement.

If confirmation of specific points with specialists is still required following the review meeting, the committee can mandate the subsequent inclusion of these in the final document without the need to call another meeting of the drugs committee. This will save time and additional expense.
Quotations for printing 5,000 copies of the booklet were obtained from three printing companies, preselected on the basis of the quality of previous work. Final selection was based on the price quoted, quality of the finish, estimated delivery time and general reliability. The cost of printing was USD 1.43 each. Printing costs were budgeted under MEDP project funds.

As expected, printing took approximately one month to complete. Submission of the document in camera-ready form for printing greatly reduced the amount of time required for printing and allowed total control over its final appearance.

However some problems were still experienced including:

- due to a lack of communication, no galley proof (a rough sample copy of the expected final product) was produced by the printer. Thus it was not possible to check before printing started that the pages were in the right sequence and of the correct size.

- the final trimming left the booklet some 13mm wider than the planned A6 size. The printers decided, without consultation, to leave slightly wider margins than specified to take account of the thickness of the document, folding of the pages and binding used. This was fortunately not a major problem as the booklet was still pocket-sized as intended.

- there was a mix up with pages due to the omission by the printers of a blank page after the inside cover page. Consequently the pages were in the right sequence and of the correct size. The paediatric weight/age conversion charts were not positioned opposite explanations of their use, and the page numbering was on the inner instead of outer edge of page and thus only visible if the booklet was fully opened.

Otherwise the print quality was good with even the smallest font size easy to read.
Tip #6:

Close collaboration and communication with the printer throughout the entire printing process is important to ensure that the final product is produced according to requirements.

This process begins with the selection of the printer and continues up to the packing and delivery of the finished product. The requirements for the publication (number, size, type and colour of paper, binding, any required artwork, colour(s) of ink to be used, etc.) must be carefully discussed and detailed before quotations are obtained. The printer should be chosen according to several criteria. These include:

- **COST** The cheapest may be the most attractive but must also be assessed according to other criteria.
- **QUALITY** Ask for examples of similar publications produced by the printer. Check these for clarity of print (is the inking too heavy or too faint? is there any smudging? are small font sizes easy to read?), neatness and strength of the type of binding required, position of pages (is the text in the right horizontal and vertical position?), the quality of trimming (are the edges of the publication smoothly cut?).
- **DELIVERY DATE** Can the printer complete the work within the time required? Will the printer deliver the finished product to you or will you have to collect it yourself?
- **GENERAL RELIABILITY** Try to consult with others who have used the printer to confirm that they are able to adhere to the agreed terms and requirements. Is the printer willing and able to maintain close contact and consultation with the client?
- **ACCESSIBILITY** Try to choose a printer who is close and whom you can therefore visit easily to check on progress throughout the printing process. Good telephone contact is not enough as instructions and information given over the telephone can be incomplete or misunderstood.

It is necessary to maintain close and regular contact with the printer throughout the printing process. Make regular checks on how the work is proceeding, both in terms of quality and timing. Make sure that the printer first produces a blank copy of the publication, so that you can check on the general quality and appearance. Always ask for a galley proof to be produced before you give the final approval for printing to proceed. When examining this, carefully check that all pages are present and in the correct position, both with regard to horizontal and vertical alignment/margins and page numbering (position of odd and even numbered pages).

Specify how you wish the publication to be packed for delivery and check the quality of the packaging used. You may want to have the publication packaged in pack sizes ideal for later distribution as this can save you time and effort in re-packing it yourself.
Distribution

The total number of copies required, to cover all the target audience (all prescribers and pharmacy personnel) over the expected maximum three-year life-span of the edition, was determined as accurately as possible from the information available. Gathering information on the numbers of personnel was a lengthy process, due partly to the number of institutions (which included some 50 hospitals and 500 health centres) and individuals concerned and partly to the unavailability, outdatedness or incompleteness of information on personnel in both the Government and mission sectors. Difficulties were also experienced in obtaining accurate estimates of the numbers of students expected to enter the various health training institutions during the three-year life-span of the first edition. A margin of 5-10% was added to cover contingencies. Insufficient copies of both MSTG 1 and MSTG 2 were printed as the number of health personnel and institutions involved was under-estimated.

Over a period of two months, 5,000 copies were distributed, both as personal and institutional copies, throughout the public and private health sectors, to the following:

Personal copies:
- Clinicians: specialists, doctors, clinical officers, medical assistants;
- Pharmacy personnel: pharmacists, pharmacy assistants;
- Senior nurses: matrons, ward sisters;
- Senior policy-makers and health professionals within the Ministry of Health;
- Staff and students of health training institutions, (including sufficient for the anticipated student intake over the next three-year period).

Institutional copies:
- Health institutions: central, district, rural and special hospitals, health centres;
- Relevant hospital departments: e.g., outpatients, wards, pharmacy, casualty, etc.;
- Disease control programmes, e.g. malaria, diarrhoeal diseases, acute respiratory infections/ tuberculosis, AIDS Control Programme;
- Regional health offices and regional medical stores;
- Health related non-governmental organizations (NGOs) in Malawi: e.g. UNICEF, International Red Cross, Médecins sans Frontières;
- A selection of international health agencies and of individuals working in the provision of drug and therapeutic information: e.g. WHO/DAP, other Essential Drugs Programmes, editors of national drug bulletins;
- Anglophone African countries (through the respective World Health Organization representatives).

Tip #7:

Careful identification of the target audience and estimation of the number of copies required to cover the expected life-span of the publication is very important.

This process may be complicated and lengthy depending on how difficult it is to obtain reliable and up-to-date information on numbers of personnel and health units.

- Sufficient time should be allowed to estimate requirements.
- The process should be carried out well before the anticipated completion of the document for printing.
- Sufficient copies should be printed to last until any future edition is produced and to cover unexpected demand.

Personal copies were intended to be retained and used by individual prescribers whereas institutional copies were to be kept within each health centre or hospital ward/department for
ready access by health staff not receiving individual (personal) copies. Each hospital was also allocated a number of spare copies for the hospital library or District Health Officer’s (DHO) office.

Methods of distribution

A variety of methods were used including:

- Personal delivery by hand within the MOH or by project vehicle to health institutions, etc. within close proximity to Lilongwe;
- Distribution by Central Medical Stores (CMS) transport to regional medical stores (RMS) for collection by stores’ clients or for onward distribution to regional health offices or health institutions near the stores;
- Delivery to the Lilongwe headquarters of the Christian Hospitals Association of Malawi (CHAM) for onward distribution to mission hospitals and health centres in the central and northern regions and to the CHAM pharmacist based at RMS (South) for distribution in the southern region;
- Distribution from regional health offices of pre-packed and pre-addressed copies for each district’s hospital and its health centres;
- Distribution from district hospitals to individuals and wards/departments within the hospitals and to each of the health centres served by the hospital. Distribution of copies for the latter was arranged by the District Health Officer through the pharmacy assistant who sent copies along with monthly drug supplies in the drug box;
- By WHO pouch to WHO/DAP and anglophile African countries (through the relevant WHO Representative in each country);
- By direct mailing to selected international agencies and individuals and to certain local organizations and individuals, e.g. private sector pharmacists and pharmacy companies;
- Through the Malawi Medical Council to all registered private sector clinicians;
- Collection of copies from the MEDP offices.

Introducing the guidelines

Tip #8:

Distribution should be carefully planned to ensure prompt and efficient delivery of the publication to the target audience.

Names and addresses of all the intended recipients of the publication should be obtained and entered into a distribution table which is used as a record of the distribution process. To this table would be added the number of copies to be distributed, the date of distribution and a column for some form of confirmation that copies had been received. In order to ensure that distribution occurs as intended, it is useful to have a contact person at each of the main distribution points who is responsible for the onward distribution process and able to confirm at any time the status of the distribution.

It is useful to inform as many as possible of the intended recipients (e.g. through small announcements, articles or radio messages) that they should be expecting to receive copies of the publication and when this should be. They should also be advised to contact the distribution centre for further information if copies have not been received by a certain date.

Active follow-up during distribution is important to keep the process moving and deal promptly with any distribution problems which may occur.
A covering letter was sent to the main distribution centres which were requested to pass on the information to health personnel and institutions within their distribution area. It explained:

- that the MSTG was an approved MOH publication for daily reference;
- that the MSTG should be used together with the Malawi Standard Drug List and the Malawi National Formulary as basic resource documents for prescriber training activities;
- how the document should be distributed and prescribers made aware of its function and status; and
- that follow-up articles about drug information documents, including the MSTG would be published in the quarterly Malawi Drug Bulletin.

A foreword in the booklet itself described the aim and function of the guidelines, summarised the process by which the content had been agreed, and asked for prescribers to assist in future modification and improvement of the booklet. A modification form was included at the back of the book for prescribers to send in their suggestions (see Appendix 8).

Other than this, there was no formal introduction of the MSTG to prescribers. Nor was there any systematic follow-up on its distribution, use and usefulness or its impact on prescribing patterns. However anecdotal information and physical evidence of this was obtained during visits to health units and discussions with prescribers. From these limited observations it appeared that the MSTG had reached most of its intended audience, was consulted regularly and was generally found to be very useful in daily clinical work. Several prescribers suggested that one major improvement would be to include an index. A visiting prescriber training consultant suggested several modifications, many of which were subsequently approved by the NDC and included in the second edition (see below).

**Tip #9:**

In order to fully inform the target audience on the aims and uses of any drug/therapeutic information text and to ensure the widest possible awareness of the benefits to be obtained through its use, a formal introduction process needs to be agreed.

Possibly the easiest way to achieve this would be to hold a national workshop to introduce the book to senior prescribers, pharmacy personnel, nurses and health policy makers. This could then be followed by regional/district workshops or training seminars at which the book would be introduced to all other prescribers. Widespread publicity covering the introduction and use of the book should be secured through the use of newspaper/magazine articles and radio/TV news or feature programmes.
Tip #10:

It is important to obtain feedback on the acceptability and usefulness of the publication and to assess as far as possible its impact on drug utilisation/therapeutic practices, so that appropriate amendments may be made to subsequent editions.

Feedback may be obtained through the use of questionnaires sent out to a representative sample of individuals in the target audience and through direct interviews with health workers. Senior health staff may be asked to assist in obtaining comments and feedback in the course of clinical, drug committee or other health staff meetings called to discuss the publication at a suitable time following its introduction.

Measurement of the impact of the introduction of the publication will need to be done using pre-introduction (base-line) and post-introduction surveys. These are usually in the form of structured questionnaires which are used to interview a statistically significant sample of the target audience. The questionnaire must be carefully designed to permit the investigation and evaluation of certain aspects of drug utilisation and therapeutic practices which are intended (expected) to be improved or modified through the correct and regular use of the publication.
MSTG 2 (Second edition)

Review of MSTG 1 and development of MSTG 2

This was a continuous process over the two year period following completion of distribution of MSTG 1 up to the final drafting of MSTG 2. Comments were received from individual prescribers by the Secretary of the NDC. These were discussed and suitable amendments approved by the NDC in the course of five meetings of the Committee held during 1991 and 1992.

Even by mid-1991, only a few months after distribution of MSTG 1, the need for an updated edition was already becoming apparent. An NDC meeting of July 1991 agreed to commence preparations for a new edition (planned to be completed by early 1992). Subsequent editions should include an index and be produced approximately every three years.

Several developments/changes in the treatment of important diseases occurred around this time:

- A major review of the treatment of clinical presentations in HIV/AIDS patients was initiated by the MOH AIDS Control Programme in order to standardise treatments and produce an HIV Management Guidelines booklet. The final draft of this was completed in July 1992.

- Increasing resistance of malaria to the recommended 1st line therapy with chloroquine was documented. In October 1991, new malaria treatment guidelines were introduced with sulfadoxine/pyrimethamine (Fansidar®) as the 1st line drug and administration of i/m quinine for severe cases at health centre level.

- Similarly, resistance of STDs, especially gonorrhoea and chancroid, to recommended treatment regimes was documented. Following further studies, consultancies and a special workshop, revised STD treatment guidelines were drafted in June 1993 shortly before the MSTG 2 was due to be printed. In fact the final version of the MSTG had to be retrieved from the printers and re-edited to include the changes made.

- WHO guidelines on a new approach to the treatment of acute respiratory infections in children and updated guidelines for management of acute diarrhoea became available.

In each of the above cases, draft treatment schedules for the MSTG 2, based on the new material, were prepared either by the editor or the relevant disease control programme. These were subjected to review by the appropriate specialists and subsequently submitted to the NDC for approval. The schedules passed through several further draft stages prior to their final adoption.

Remaining material in the MSTG 1, not covered by the above, was divided into logical sections, e.g. skin conditions, paediatric treatments, obstetric/gynaecological conditions, ophthalmic conditions, etc. and sent out to the relevant specialist(s) for comprehensive review and comment. This process took a considerable time and required intensive follow-up to obtain the required feedback.

After all comments had been received and incorporated into the master document, a special meeting of the NDC was arranged for July 1992, to which approximately 20 co-opted experts were invited. Background documentation summarising all the amendments to MSTG 1 agreed
by the NDC in its previous meetings, and including all the new draft material produced, was
distributed to participants prior to the meeting.

On the first day of the two-day meeting, the draft material was reviewed in plenary session and
necessary amendments proposed and agreed. On the second day participants were split into
four working groups, of about 10 persons each, to draft new treatment schedules and treatment
guidance points (key clinical or patient management points to be noted at the start of each
schedule). The working groups then presented their material in turn to the full meeting for
further discussion and approval.

A sample page of the draft MSTG 2 had been prepared to illustrate the improved format and
layout of the text and the presentation of the dose regime information. This was also reviewed
and approved. The editor was given the go ahead to prepare the remaining sections of the
MSTG 2: an index; preface; foreword; prescribing guidelines section (to be adapted from that
included in the 1991 Malawi National Formulary); a section summarising the presentation of
information (e.g. dose regimes, arrangement of sections, indexing and cross-referencing,
routes of drug administration, alternative drugs) and the cover page.

A few minor queries remaining were left for follow-up clarification with the appropriate
specialists. Any further amendments arising out of this, providing they were not substantive,
were then permitted to be incorporated by the editor without further approval from the NDC.

Editing and preparation for printing

For this edition of the MSTG, the text was prepared using word processing software (Microsoft
Word for Windows® version 2.0) and tables using a spreadsheet programme (Microsoft Excel®
version 4.0). Use of a word processor was found to be much easier and quicker than the desk-
top publishing software used for the first edition, while still enabling inclusion of the text
enhancements needed for the new edition, such as boxes and shading.

Tip #11:
Preparation of drug information documents
and other similar reference texts is an
intensive and lengthy process. In order to
minimise the time required to complete the
process, it is advisable to make
arrangements for the editor to work full-time
on this activity

In preparing this new edition, the opportunity was
also taken to:

• reorganise the content, by grouping treatment
  schedules into logical sections based on
types of condition or by body system.
• improve the presentation of the text, by
  - changing to a sans-serif font, which
    improved the legibility of the smallest
    font size used and
  - using bullets to highlight prescriber
guidance points and treatment steps
and italic text to highlight key words.

Incorporation of all the amendments agreed at the NDC meeting, addition of the remaining
sections and preparation of the camera-ready final version for printing (see Appendix 9)
occupied a further six months (see Tip #5). This was mainly due to delays in obtaining the
required feedback from specialists finalising specific sections and to the workload of the editor
who also had to attend to other duties during this period.
For technical notes and content of MSTG 2, see Appendix 10.

Printing

Again, three quotations were obtained from pre-selected printers. The company which printed MSTG 1 was not asked to quote, due to the poor quality and long delays experienced in a subsequent print job awarded to them. The contract was awarded to the company giving the cheapest quotation which was able to comply with the stated specifications and requirements.

The company awarded the contract was able to print 9,000 copies of MSTG 2 for USD 1.45 each. This was an extremely favourable price being almost identical to that of MSTG 1 for a publication approximately 85% larger and having a better quality cover printed in colour. This special price was obtained after extensive negotiations and was partly possible due to the combined award of this work together with another, larger, print job, for the Malawi Prescriber’s Companion (MPC).

The cost of printing was partly funded (approximately 1/3 of the costs) by the National AIDS Control Programme as the MSTG 2 contained a greatly improved and much more extensive section on the treatment of clinical presentations in HIV and AIDS patients.

The camera-ready MSTG 2 was delivered to the printers in July 1993. A full galley proof was produced and found to be exactly as required. The printer was given the final approval in late July to proceed with printing and the first batch of 2,000 copies was delivered towards the end of August. However, it was not until mid-October that the last of a series of batches was delivered. Printing had been estimated (as a verbal promise) to take approximately one month but eventually took nearly three months due to pressure of unexpected urgent additional work accepted by the print company. This meant that distribution of the MSTG, and the start of the planned introductory workshops, had to be delayed.

The quality of the final product was excellent and a significant improvement on MSTG 1, largely due to the attractive cover and greatly improved layout and presentation of information.

Tip #12:

Efforts should be made to seek multisource funding of the document in order to reduce the cost burden on any one department or programme.

Co-funding should be possible, particularly if other departments or programmes are involved in the preparation of the material and if the final product is able to promote and satisfy the interests of these other parties.

Tip #13:

In order to ensure that the printer produces the document exactly as and when required, it is advisable for all specifications to be detailed in a written contract.

This should include:
- the full name and address of the client;
- the number of copies required;
- the agreed cost;
- the type of print process to be employed, e.g. offset litho;
- the type and weight of paper to be used for the cover and the inside pages;
- the type of binding;
- specification of any colours to be used;
- the date of delivery of the completed job, or in case of batch deliveries, the number of copies to be delivered and the date of delivery of each batch;
- the timing and method of payment.
Distribution

Joint distribution of the MSTG 2 together with the Malawi Prescriber’s Companion (MPC) began as soon as the first batch of copies of each became available. The MPC, which had been several years in development, covered health centre and patient management, including history taking, diagnosis and summaries of treatment. It was thus, as intended, a natural companion volume for the MSTG 2. Simultaneous introduction of both volumes was intended to enhance this link.

The target audience for both publications was basically the same as that for MSTG 1 (see page 12), with the major exception that now, being prescribers in their own right, all nurses were to receive a personal copy of each publication. Previously, although nurses had been prescribing for many years, particularly at peripheral health centres during periods of absence of medical assistants, they did not have any official status or responsibilities as prescribers. However as a result of developments in the MEDP prescriber training programme, nurses were officially accepted as prescribers and were thus now included in the target audience. This, together with the overall increase in the number of relevant health professionals since MSTG 1 was produced in 1990 and a significant increase in the number of those undergoing training (including medical students at the newly established College of Medicine), necessitated the increase in copies required from the previous 5,000 to 9,000. As it turned out, even this was to prove inadequate (see below and Tip #7).

Distribution channels were similar to those used for MSTG 1 (see earlier) with Central Medical Stores taking an active role in distributing the bulk of copies to regions for onward distribution. The system generally worked efficiently, but took longer than expected due to intermittent problems with availability of spare transport capacity to carry the relatively large loads (weight and volume) of the two publications.

As with MSTG 1, a covering letter was sent out to the main distribution centres with:

Tip #14:
A good layout for the text and an attractive presentation of the publication facilitates use and enhances acceptability

Factors to be considered include:

- the size of the publication, which should be related to its intended use, i.e. as a pocket guide or desk-top reference;
- the type and size of the fonts used, both for the body (main) text and for chapter and section headings;
- the use of text enhancement features such as bullets, boxes, shading, underlines, bold and upper case (capital) letters to highlight certain words, sentences or blocks of text;
- the inclusion of a comprehensive table of contents and index, and the use of extensive cross-referencing and headers or footers showing section or chapter names, to facilitate the location of information on particular topics;
- the use of tables, graphs or drawings/photographs, etc. to summarise information or illustrate certain points in the text;
- careful design of the cover to give a good appearance to the publication. In this respect the use of colours, special types of font and a suitable cover illustration should be considered along with the type of cover material to be used.

If time permits and particularly where criticism has been received on the appearance, ease of use, etc. of a first (or previous) edition, it would be worthwhile carrying out pilot (field) testing of alternative layouts and presentations of the publication to determine which is the most acceptable to the intended target group.
• a summary of the development of, and the improvements in, the new edition of the MSTG;

• a description of the development, aims and uses (in conjunction with the MSTG) of the MPC;

• the distribution arrangements, including details of the numbers of copies and target audience involved;

• a contact address for return of excess copies or requests for additional copies;

• a reminder that the documents would be used as resource materials in the forthcoming prescriber training activities, which would be assisted and funded by the MEDP.

Articles about the new edition of the MSTG and MPC appeared in the Malawi Drug Bulletin with requests for prescribers to contact MEDP if they had not received copies by the end of October.

Unlike MSTG 1, some active follow-up of distribution was carried out in the form of telephone contact with major institutions and distribution centres. The prescriber training team checked whether individual prescribers had received copies. A questionnaire was sent out in February 1994 to all District Health Officers and hospital superintendents. Information was sought regarding the status of distribution of the MSTG 2 (and MPC) and whether additional copies were required. Over 60% response to the questionnaire was obtained and most districts and hospitals had received and distributed their allocated copies of the documents.

However, soon after the planned distribution had been completed, telephoned and written communication from several institutions and individuals, and anecdotal evidence collected during field visits by the MEDP prescriber training team, indicated that, in some cases, either insufficient or no copies of the documents had been received. Investigations revealed that:

• distribution had sometimes not been carried out as recommended. In some cases distribution had not been started (with copies still awaiting forwarding from distribution centres such as regional health offices or district hospitals), in others it had not been completed, and in a few cases distribution had gone beyond the recommended target audience.

• figures for copies required for the large (central) hospitals had been significantly underestimated by the hospital administration(s).

• there had been a large increase in the planned intake of most health training institutions since the estimates were prepared. As this version of the MSTG was planned to cover student intakes up to and including 1995, the total requirements for health training institutions had to be revised.
It thus became necessary to arrange for a further 3,000 copies to be printed to ensure that all persons requiring copies would receive them while still leaving a healthy contingency amount (approximately 10% of the total) available in case of further unexpected demand. This was arranged with the same printer who produced the copies at cost of USD 1.59. This represented a 10% increase in the cost per copy mainly due to the increased cost of the print materials required. Printing of these additional copies commenced in late November 1993 and was completed by mid-January 1994.

Introducing the new edition

Unlike MSTG 1, the new edition was formally introduced to prescribers together with the MPC during numerous prescriber training workshops which commenced immediately following the distribution of the documents (see Tip #9, page 13).

Prescriber training workshops

These started at regional level, where the publications were introduced to a two to four person district prescriber training team consisting of the DHO and/or the senior Clinical Officer and the Matron and/or senior nurse. The Medical Officer in charge (or a representative) of each mission hospital in the region also attended. The team members were chosen on the basis of being in a position to supervise prescribers and follow up on training activities after the district level workshops.

At these regional workshops the teams were briefed on how to plan, budget for, and arrange district workshops in general and how to implement the first series of these which had the aim of introducing the MSTG and MPC to all prescribers in each district of the region. The regional workshops also produced 10 short questions and five longer questions (case studies) which were to be used in the district workshops (see Appendix 13).

District training started with pilot workshops in two districts in October 1993. Minor modifications to the workshop programme of activities were made as a result of these. More than 100 one-day district workshops were planned targeting 4,500-5,000 prescribers. So far over 60 workshops, at which a total of more than 3,000 prescribers were trained, have been conducted by the district training teams. Members of the prescriber training team attended at least one workshop in districts requiring additional technical assistance. Workshops are still continuing in the remaining (Southern) region at which a further 1,500-2,000 prescribers will be trained in the course of the next three months. For details of a typical district workshop programme of activities see Appendix 13.

Feedback

Apart from comments received in the course of the workshops mentioned above, feedback on the availability and usefulness of the MSTG 2 and MPC has been received in several ways including:

- letters and verbal comments from individuals;
- informal comments received during field visits by MEDP staff to health units;
- health centre support visit checklists - these have been designed to assist in the improved structuring of such visits by senior clinical staff to peripheral units. They are intended to enhance systematic monitoring and evaluation of all aspects of health centre and patient management.
Sections of the checklist record:

a) the availability of reference documents (including the MSTG);
b) compliance by prescribers with recommended treatments;
c) comments on the usefulness of the MSTG;
d) corrective advice to prescribers on specific cases/treatments where errors have been detected, making reference to the relevant sections of the reference texts.

All comments so far, both national and international, have been extremely favourable. The MSTG has reached virtually all of its intended audience, is in regular daily use by all levels of prescribers and is found to be a user-friendly and vital reference source.

What is not yet known is whether the systematic introduction of the MSTG 2 (and MPC) through the district prescriber workshops has had any impact on prescribing practices and thus whether there is greater compliance with recommended treatment protocols (see Tip #10, page 14). Although a national base-line study on prescribing practices was not performed prior to the introduction of the new texts, prescribing data for one district is available in the form of out-patient registers (see below). Thus for this district at least, it will be possible to compare prescriber compliance before and after the introduction of the texts.

Use in drug utilisation and prescription monitoring

The MSTG is being used to compare actual prescribing practices with recommended treatment regimes, together with management tools which have been developed for the purpose and which are currently being pilot-tested for possible national introduction. These include:

- Out-patient registers: this records details of patients, diagnoses and treatments prescribed. Evaluation of the degree of compliance of prescribers with recommended treatments is made by comparison with MSTG guidelines. It is expected that such registers would be routinely used and would provide detailed information on patient attendances, treatment practices and morbidity patterns.

- Duplicate prescription pads: these are an alternative form of collecting the same types of information, in which carbon copies of each prescription are made and retained for subsequent analysis. These would not be used routinely, but would be used when required to identify problem areas in prescribing. District level or even health unit specific training interventions would then be prioritised and implemented to focus on the specific problems exposed.

Future plans

Training workshops

The district training workshops mentioned above to introduce the MSTG/MPC to prescribers and orientate them on their use will be completed. A similar series of workshops will be arranged in collaboration with senior hospital staff at the large central hospitals in Malawi.
Development of curricula for formal health training courses

Initial work has already been carried out to introduce tutors of these courses to the use of the various reference texts available, including the MSTG, and to discuss the incorporation of modules within revised curricula to cover the aims, functions and uses of these documents. Further consultations will be held with the tutors to agree on and finalise the content of these modules.

Review of MSTG 2 and preparation of the next edition

This will be largely a continuous process. However, prescribers will be more actively encouraged to send in their comments on MSTG 2 and suggest necessary changes by regular reminders at any points of contact, such as during training workshops, field visits, and district health officer meetings. These will be reinforced by regular articles on the MSTG and other reference texts in the quarterly Malawi Drug Bulletin.

As before, all proposed amendments will be submitted to meetings of the National Drugs Committee for discussion and subsequent approval prior to incorporation. Once a sufficient proportion of the publication is regarded as out-of-date and no longer relevant to current therapeutic practices and certainly within the three year interval between editions agreed by the NDC, the text of a new edition will be prepared. This process will be greatly facilitated by the lessons learned and experience gained in the production of the previous two editions.

Editing of the existing text to incorporate future amendments will be a relatively straightforward process using a normal word-processor.
Appendices
Appendix 1

Background publications used in preparation of the guidelines

MSTG 1


EDLIZ. Harare: Ministry of Health, Zimbabwe, 1985


Reference was also made to Ministry of Health publications available at the time including:


MSTG 2

Other texts consulted for this edition (in addition to those used for MSTG 1) included:


Ministry of Health booklets:

Guidelines for Management of Malaria. Lilongwe: Ministry of Health, Malawi, 1992

HIV Management Guidelines. Lilongwe: Ministry of Health, Malawi, 1994 (draft)

STD Guidelines. Lilongwe: Ministry of Health, Malawi, 1994 (draft)
### Sample page of MSTG 1 (December 1988) first draft
(based on QUANTED spreadsheet)

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<th>Drug Code</th>
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<th>Dosage</th>
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Appendix 3

Sample page of MSTG 1 (May 1989) second draft

22.05.1989  page 1

1. Amoebiasis

**Treatment in Adults:**
Recommended:
- Metronidazole tabs 200mg: 2 x 3 x 10 days

**Treatment in Children:**
Recommended:
- Metronidazole tabs 200mg: 40 mg/kg for 10 days

2. Anaphylactic shock

**Treatment in Adults:**
Recommended:
- Sodium chloride 0.9%, 500ml: 1blt x 2 x 1 day
- Adrenaline amp 1mg/ml, 1ml: 1amp slow IM.

**Treatment in Children:**
Recommended:
- Adrenaline amp 1mg/ml, 1ml: 0.5amp IM
- Sodium chloride 0.9%, 500ml: 1blt x 1 x 1 day

3. Ancylostomiasis (hookworm)

**Treatment in Adults:**
Recommended:
- Mebendazole tabs 100mg: 1 x 2 x 3 days

**Treatment in Children:**
Recommended:
- Mebendazole tabs 100mg: 1 x 2 x 3 days

4. Animal bites

# Never suture a bite wound of any kind

**Treatment in Adults:**
Recommended:
- Cetrime + Chlorhexidine solution 15% + 1.5%
- Rabies vaccine HDCV 1ml inj IF NEEDED !!!: 1 amp on days 1, 3, 7, 14, 28, 90
- Chloramphenicol caps 250 mg: 2 x 4 x 5 days
- Tetanus vaccine 20 doses per vial: 1 dose wk1, wk4, wk6

**Treatment in Children:**
Recommended:
- Rabies vaccine HDCV 1ml inj IF NEEDED !!!: 1 amp on days 1, 3, 7, 14, 28, 90
- Chloramphenicol caps 250 mg: 100 mg/kg per day for 7 days
- Cetrime + Chlorhexidine solution 15% + 1.5%
- Tetanus vaccine 20 doses per vial: Give one booster
Appendix 4

Sample page of MSTG 1 (July 1989) third draft

Treatment schedules for Drugs Committee & Drugs Formulary Group

Approved version

1. **Amoebiasis**

   **Treatment in Adults:**
   Recommended:
   Metronidazole tabs 200mg: 2 tabs x 3 times/day for 7 days

   **Treatment in Children:**
   Recommended:
   Metronidazole tabs 200mg: 40 mg/kg for 7 days divided into 3 doses

2. **Anaemia**

   +++ Always think of helminthic infection and of malaria in children

   **Treatment in Adults:**
   Recommended:
   Ferrous sulphate tabs 200 mg: 1 tab 2 times/day during meals for 3 months

   **Treatment in Children:**
   Recommended:
   Ferrous sulphate tabs 200 mg or paediatric mixture (60mg/5 ml):
   15-30 mg/kg/day divided in 3 doses
   Folic acid tabs 5mg: 1 tab/day for 7 days

3. **Anaphylactic shock**

   +++ The main objective is to secure access to a vein. Determine and remove the cause. Lie patient down, keep warm, elevate legs. Refer to District Hospital and meantime provide the following treatment:

   **Treatment in Adults:**
   Recommended:
   Sodium chloride 0.9%, 500ml: 50 ml/kg in 60 minutes
   Adrenaline amp 1mg/ml, 1ml: 1amp slow i.m.

   **Treatment in Children:**
   Recommended:
   Adrenaline amp 1mg/ml, 1ml: 0.5amp IM
   Sodium chloride 0.9%, 500ml: 30 ml/kg in 60

4. **Ancylostomiasis (hookworm)**

   **Treatment in Adults:**
   Recommended:
   Mebendazole tabs 100 mg: 1 tab twice/day for 3 days or Albendazole tabs 200 mg: 2 tabs single dose (++ Contra-indicated in pregnant women).

   **Treatment in Children:**
   Recommended:
   Mebendazole tabs 100mg: 1 tab twice/day for 3 days or if over 2 years Albendazole tabs 200 mg: 2 tabs single dose.
Appendix 5

Sample page of MSTG 1 (November 1990) final version
Appendix 6

Technical notes on MSTG 1

Size:
A6 (= 105 x 149 mm). This was chosen so that the document could serve as a pocket-sized guide taken on clinical rounds.

Notes:
1. It is important to decide on the size of the publication at the beginning of its development.
2. When deciding on the size, it is advisable to consult a print company. In general it is preferable to choose from one of the standard sizes, e.g. A4, A5, A6 which are used locally. The photographic plates used by printers are able to take a certain number of pages each, depending on the size. Often, a small adjustment to the chosen page size may allow more pages to be fitted on each photographic plate. This means in turn that fewer plates will be needed so the cost can be reduced.

Cover page:
Malawi Government crest, Malawi Government/Ministry of Health, publication title in shaded box, Malawi Essential Drugs Programme (all in bold capital letters).

Font types and sizes used:

Font Types and Sizes

Font types: a font is the name of a type-face, i.e. the shape of the letters of text. There are two basic kinds of font:

*Serif* fonts (e.g. Palatino, Courier, Times Roman) have fine cross strokes (serifs) across the ends of the main strokes of each letter, e.g. across the top and bottom of the letters h or p. This is an example of a serif font (Times Roman).

*Sans serif* fonts (e.g. Helvetica, Optima, Arial) like the one used in this document (Helvetica-Light) do not have these serifs.

Font sizes: type (font) sizes are measured in points (pt). One point is 1/72 inch. Thus an inch contains 72 points. A type’s point size is usually the measurement of the full height of lowercase letters from the top of the ascender (the stem that points up on some lowercase letters, such as h, l and k) to the bottom of the descender (the stem that points down on some letters such as p, q, y, j). Body copy (the main text in documents) is usually set between 9 and 12 points in size with headings generally larger. Text smaller than 6 points is difficult to read and is rarely used.

Foreword (drafted for and signed by the Chief of Health Services) and Preface (by editors) - 10pt Dutch.

Main text: Dutch 8 pt - the smallest easily readable size - to keep overall size/thickness of publication down.
Header: Helvetica 12 pt bold caps underlined (same for odd and even numbered pages).

Footer: Helvetica 8 pt bold caps (different odd and even numbered pages to position the page number on the outside of each page).

Disease titles: Dutch 12 pt bold in shaded box.

All drug names in bold type.

Number of pages:
Total pages = 104 including four blank pages for notes.
Note: depending on the type of binding chosen, the number of pages which will fit on the printer's photographic plate and the way the printer assembles pages for binding will determine the precise number of pages in the publication (usually a multiple of 2 or 4). Blank pages can be added to obtain the number required.

Paper used:
For inside pages was 70g white bond, which was considered the thinnest paper which would have sufficient strength to withstand regular use and yet still permit printing on both sides of the paper without print-through (text from one side of the paper beginning to appear on the other side, due to ink passing through the thickness of the paper) occurring. The cover was printed on 160g blue card - the thinnest card expected to give adequate protection to the inner pages during the lifespan of the publication - expected by the NDC to be up to three years.

Binding:
By two metal staples which was simple, cheap and adequate for this size (thickness) of publication.

It was observed that after some three years of daily use, although the cover of the MSTG tended to get dirty and the corners damaged, the inside pages remained clean and undamaged and the binding intact.
Appendix 7

Cover page of MSTG 1
Appendix 8

Modification form for MSTG 1
Appendix 9

Sample page of MSTG 2 (July 1993) final version
Appendix 10

Technical notes on MSTG 2

Content

Total pages:
192 including four blank pages for notes. This was 88 pages longer than MSTG 1. However it could still be folded for binding with two staples in the fold.

Cover page:
Malawi Government (MG) crest, MG/Ministry of Health as in MSTG 1, title with edition number and date, and an attractive three colour illustration. A local free-lance graphic artist was hired to produce the latter, which consists of a map of Malawi overlaid by various dose-forms falling out of a capsule. This design greatly enhanced the appearance of the publication and did not add greatly to the cost of each copy. Although only two spot colours (yellow and blue) were used for the illustration, the third colour (green) was the unexpected but desirable result of a slight error in production of the printing plates for the cover, whereby one colour was overlaid on top of the other. NB. If the three primary colours are chosen, i.e. red, yellow and blue, it should be possible to produce all other colours by overlaying one or more primary colour on top of another. e.g. red + yellow = orange, red + blue = purple, yellow + blue = green, etc.).

Back page:
MEDP with adaptation of WHO/DAP logo.

Inside front page:
Summary of publication and printing information, and address for further copies.

Foreword:
A revised version outlining the development of the new edition was drafted for and signed by the Chief of Health Services.

Preface:
A new preface summarising the main changes in the new edition was prepared by the editor.

National Drugs Committee and Acknowledgments:
These new sections were added listing, by name and post, the members of the committee and other individuals who contributed by review and/or production of new material to the MSTG 2.

Prescribing guidelines:
This new section was adapted from a similar section in the Malawi National Formulary and covered: general notes on prescribing, prescribing of placebos, prescription writing, in-patient prescriptions, guide to quantities to be supplied, controlled drug prescriptions, notes on adverse drug reactions, paediatric prescribing (notes and charts for weight/age conversion) and notes on drug interactions.

Presentation of information:
A new section detailing the arrangement of sections, indexing and cross-referencing, prescriber guidance points, routes of drug information and alternative drugs.

Also included are sections covering abbreviations, metric units, metric/imperial equivalents, a disease index and a modification form.

Formatting/layout

Page size:
A6 (105 x 149 mm). For this edition care was taken to set the margins sufficiently wide to allow for binding and subsequent trimming and that the final product was trimmed to the exact specified size.

Fonts:
All text except cover in Arial Truetype - Main text in 8pt, treatment guidance points in 10pt, disease headings in 12pt bold, section titles in 12pt bold capitals.
Cover page: Title in 20pt Architect bold type, MG/MOH in Arial Truetype 10pt bold capitals.
Header: MSTG 1993 (bold caps) and section number and title (bold lowercase) in 8pt (odd and even numbered pages different). Having the section number and title on the outside of the top of each page facilitates rapid location of sections.
Footer: MEDP and page no. in 8pt bold caps (odd and even numbered pages different with page number on the outside - to facilitate rapid location of a required page).

Text enhancements:
All drug names in bold type.
Disease heading in shaded boxes.
Key words and alternative treatment headers in italic type.
Round bullets for prescriber guidance points and arrow-head bullets for treatment steps.
Legal numbering system (e.g. 1, 1.1, 1.1.1, etc.) for sections and conditions within each section (the latter also arranged alphabetically).

Paper:
For the inside pages - 70g white bond as for the 1st edition.
The cover was printed on 160g white semi-gloss art-board. This was not too expensive, gave adequate protection against wear and dirt, had an attractive, clean appearance and gave good contrast for the colours of the illustration.

Binding:
Was by two metal staples which was simple, cheap and still adequate for the increased thickness of this edition.
Appendix 11

Cover page of MSTG 2
Appendix 12

Comparison table for MSTG 1 and MSTG 2

<table>
<thead>
<tr>
<th>Feature</th>
<th>MSTG 1</th>
<th>MSTG 2</th>
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<tr>
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<tr>
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Appendix 13

District training workshops to introduce MSTG 2 and MPC

1. Description of activities

At each workshop a pre-intervention test was performed with participants being asked to answer, using the books, five short questions on treatments and patient management (see 3). For each answer, the book(s) used and the method of locating the relevant information (i.e. using the index(es), table(s) of contents, or other) was to be indicated together with details of the page and section numbers.

This was followed by an introduction to the structure, presentation of information and advice on the correct use of the books.

After being split into smaller working groups of five to six persons, participants at each workshop were then asked to complete a further series of 10 short questions (two questions being allocated to each group) using the books (see 4). The answers were presented to a plenary session and followed by discussions on the answers and the method of finding the information.

The workshop continued with a role play performed by the facilitators to introduce the subjects of drug management (dispensing) and patient management, including communication with the patient, history taking, patient examination, diagnosis, prescribing and counselling.

The first play showed an example of incorrect patient management (e.g. lack of privacy, poor attitude of the prescriber, poor communication with the patient with resultant lack of input from the latter, inadequate history taking, little or no patient examination, poor diagnosis, incorrect prescribing, insufficient patient counselling, etc.). After a plenary discussion of the principles of correct patient management, the role play was repeated showing an example of how these principles should be applied in daily clinical practice.

A second role play focusing on the dispensing process, illustrated the incorrect way of performing this final step in patient management (e.g. poor communication with the patient, poor attitude of the dispenser, lack of proper dispensing containers, little or no advice on dose regimes, inadequate counselling, etc.). Following a plenary discussion during which the rules of good dispensing were identified, the role play was repeated showing how these principles could be applied in practice.

Working groups were then each allocated five longer questions, one question to each group, in the form of “paper patients” or case studies (see 5) in order to discuss the diagnosis and management of the patients using the information available in the books. Each of these cases was then presented, making reference to the relevant sections of the books, at a plenary session for further discussion of the recommendations of each group for management of their “patient” and the method of locating the information.

A post-intervention test, using the same five short questions as in the pre-test conducted at the start of the workshop, was then completed by each participant. The scores obtained in the two tests were quickly averaged and compared and the results discussed. Results showed a marked increase from an approximate average of 25% to 85% indicating greatly improved use of the books and location of the required information.
Finally, a workshop evaluation form (see 6), distributed earlier in the day, was filled in by the participants and collected. Participants were also asked for any suggestions about how the workshop might be improved.

In general participants found the workshops to be very useful and enjoyable. They considered that the correct use of the two books would enable them to greatly improve their drug and patient management skills. However, many participants suggested that such workshops would need to be repeated every two years or so to refresh existing prescribers and orientate new prescribers coming into the health system.
2. Typical district workshop programme

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>08.00 - 08.15</td>
<td>Welcome and personal introductions by facilitators and participants. Opening address by the District Health Officer (DHO).</td>
</tr>
<tr>
<td>08.15 - 08.30</td>
<td>Pre-intervention test (five short questions) using the MSTG and MPC.</td>
</tr>
<tr>
<td>08.30 - 09.00</td>
<td>Introduction to the structure, presentation of information and correct use of the MSTG and MPC.</td>
</tr>
<tr>
<td>09.00 - 09.30</td>
<td>Divide into working groups to answer ten short questions using the books (two questions per group).</td>
</tr>
<tr>
<td>09.30 - 10.00</td>
<td>Plenary session to discuss answers and method of finding the information.</td>
</tr>
<tr>
<td>10.00 - 10.15</td>
<td>Tea/coffee break.</td>
</tr>
<tr>
<td>10.15 - 12.00</td>
<td>Role play by facilitators illustrating incorrect patient management. Plenary discussion of the role play and the principles of good patient management. Presentation of summary baseline survey data on prescribing practices. Role play demonstrating correct patient management. Role play by facilitators illustrating poor dispensing technique. Plenary discussion on the role play and on the principles of good dispensing practices. Presentation of summary baseline data on dispensing practices. Role play demonstrating correct dispensing and patient counselling.</td>
</tr>
<tr>
<td>12.00 - 13.30</td>
<td>Lunch break.</td>
</tr>
<tr>
<td>13.30 - 15.15</td>
<td>Group work on five longer questions (case studies) using the books (one case study per group) - 45 minutes. Presentations by groups (max. 15 minutes each) to plenary session for comment and discussion.</td>
</tr>
<tr>
<td>15.15 - 15.30</td>
<td>Tea/coffee break.</td>
</tr>
<tr>
<td>15.30 - 15.45</td>
<td>Post-intervention test (five questions).</td>
</tr>
<tr>
<td>15.45 - 16.30</td>
<td>Distribution and completion of workshop evaluation form. Discussion of pre- and post-intervention test results. Suggestions for improvements to the workshop.</td>
</tr>
<tr>
<td>16.30</td>
<td>Closing comments on workshop by the DHO.</td>
</tr>
</tbody>
</table>
3. Pre- and post-intervention test questions

1. What is an essential drug?
2. What are the four steps of the planning cycle?
3. What are the signs and symptoms of kwashiorkor?
4. What are the signs of impetigo? Where is the treatment described?
5. What are the clinical signs of hookworm mostly caused by?

4. Example of 10 short questions used in district workshops

1. What does drug supply management involve?
2. What is the problem solving approach to making a diagnosis?
3. What are the signs and symptoms of marasmus?
4. Describe the management of mastitis
5. Which group of patients are at special risk from malaria infection?
6. What are the signs and symptoms of dehydration?
7. Describe the management of dental abscess
8. List the available methods of family planning
9. When should an abscess be incised?
10. What is the other name for threadworm?

5. Example of five long questions (case studies) used in district workshops

Using the MSTG and MPC answer the following questions:

1. Mphatso Chintengo, 18 months old, has just been admitted to the paediatric ward for severe malnutrition.
   a) What are the possible signs and symptoms she may present with?
   b) Describe the correct management of this child
   c) How may malnutrition be prevented?
   d) List the complications of malnutrition

2. Mary, aged 23, unmarried, normal monthly periods, comes to the clinic with a complaint of lower abdominal pains and offensive vaginal discharge. Has not been to any clinic for treatment.
   O/E mild fever, lower bilateral abdominal tenderness on palpation, V/E offensive discharge, cervix tender on motion
   a) What is the diagnosis? How did you make it?
   b) Describe the correct management of this patient
   c) What are the possible complications?

3. a) What is the difference between AIDS and HIV?
   b) How can you diagnose AIDS in adults?
   c) A patient complains of weight loss, chronic diarrhoea, prolonged intermittent or constant fever and persistent cough (all for over one month). What pre-test counselling would you give this patient?
   d) What safety precautions must be carefully observed by health workers?
4. Mrs Chipha brings her 13 year old daughter, who has been complaining of fever, joint pains, headache and vomiting for the past two days, to the out-patient department. On examination the girl seems to be shivering and her temperature is 39°C.

a) What is the most likely diagnosis?
b) What investigation(s) would assist in making the diagnosis?
c) Describe the correct management of this patient

5. Mrs Mphango came to the hospital presenting with severe diarrhoea with rice water stools and moderate vomiting for two hours. On examination she has no fever, very sunken eyes, rapid pulse, her skin feels cold and clammy, and she has a very dry tongue. On pinching the skin goes back slowly.

a) What is the likely diagnosis?
b) How would you assess the degree of dehydration?
c) Describe the correct management of this patient
d) What are the control measures required for this condition?

6. Evaluation questions for the district workshops

1. How useful was the workshop for learning how to use the Malawi Prescriber’s Companion?
   - Very useful
   - Useful
   - Not very useful

2. How useful was the workshop for learning how to use the Malawi Standard Treatment Guidelines?
   - Very useful
   - Useful
   - Not very useful

3. How did you rate the organization of the workshop?
   - Very useful
   - Useful
   - Not very useful

4. Please give suggestions for improving the workshop.

   ..............................................................