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How to make manuals for health workers

Learning materials for health teams are scarce in developing countries. Those that exist are often out of date and inappropriate for the intended readers. It is hoped that the points discussed in this article will help towards the production of effective training and reference manuals.

Although a specialist may find it relatively easy to write a training or reference manual, the product may be unsatisfactory from various points of view. Partly on the basis of recently published guidelines (1), some of the factors that should be borne in mind by the creators of such works are considered below.

Meeting priority health needs

Because of the acute shortage of teaching/learning materials, it is essential that first priority be given to manuals that are genuinely needed by learners, teachers and health workers in service. Committees of teachers and representatives of health services and ministries of health should assess what materials are most urgently needed to support primary health care, who needs them, and whether texts will be appropriate for the improvement of understanding or for upgrading competence. On this basis, national programmes for the production of manuals in strict order of priority can be planned. This presupposes curricula relevant to the tasks to be performed by different categories of health worker, and a knowledge of what materials exist which can, at least in part, meet learning requirements. Such committees may draw attention to the need to revise curricula that no longer reflect the realities of primary health care, and can initiate consultation between trainers and supervisors, which is essential for planning, field testing, feedback and the evaluation of materials. In the Sudan, for example, a number of broadly representative editorial committees are responsible for manuals at all stages from design to evaluation.

The readers

Each level of health staff has its own educational background and requires special consideration by the writer. It is therefore necessary to specify and get to know the group at which a manual is aimed. The intended users may be:

— students, ranging from those on three-year courses for medical assistants with full secondary education to those on three-month courses for community
health workers with perhaps only six years of basic education;

- health workers in the field who need materials for reference and continuing education;

- teachers of all categories of health staff, who require instructors’ manuals as well as teaching aids;

- members of the community, for whom promotional materials are invaluable in backing up the work of peripheral health workers and providing guidance on improving their health through their own efforts.

Each type of reader needs a different approach by the writer, and probably even different writers. A competent writer of technical manuals may not be able to prepare promotional manuals for use by the community.

The content

Manuals for health workers should contain only information that workers must have in order to perform their tasks properly. Their whole range of duties should be well known to the writer. The text should be strictly relevant to the local situation. It should tell the readers what to do and how to do it. Peripheral workers, for example, need simple instructions on when to refer patients to the next level of care. If one of the readers’ tasks is to teach the community, the manual should clearly state what is to be taught and should give advice on how to communicate. The primary health care approach has altered the roles of health workers at all levels. Whereas this can be clarified in training courses for new health staff, it must be remembered that the vast majority of health workers have not been exposed to new concepts and ideas, which should therefore be covered in reference books and continuing education courses based on correspondence materials, with or without radio backup. Throughout the development of a manual, the writer should constantly have in mind its purpose and the educational level, knowledge and functions of the intended readers. Increasing attention is being paid to the need for training courses and manuals for managers and supervisors, because, without effective leadership, the health team cannot give of its best.

Adaptation

Many manuals suitable for one category of health staff require relatively little modification to meet the needs of another. Some, especially ones on technical subjects, would lend themselves to adaptation in countries other than the ones for which they were written. There are often several initiatives in manual writing in neighbouring countries, or even within the same country, and writers may be unaware of the activities of their colleagues. Frequently, sets of teachers’ notes or handouts offer a basis for excellent learning material. This sort of information can be brought to light through countrywide surveys of needs and resources, which are essential before projects on health learning materials are undertaken. They not only permit an inventory of materials but also help to identify potential authors with a facility for organizing materials and

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presenting them in a fashion that the reader can understand. Before embarking on a programme of manual writing, therefore, a review of what is available should be conducted to assess whether it can be adapted to meet priority needs. It may be easier to revise a text than to create a new one. However, there is a limit to adaptation: if the changes required are extensive, it is wiser and less frustrating to start afresh.

Intelligibility

The language employed should correspond to the reading ability of the user. This is particularly important when the reader has a low level of basic education. Materials may need to be written in a local dialect. Especially at this level of writing, organization and layout are critical. Illustration with a local flavour can aid understanding, and ideas or instructions should be backed up by case studies or examples. New subject matter should be associated, as far as possible, with what the student already knows. The only way to be certain whether a text can meet its purpose is to test it on some of the intended readers.

Producing a new manual

After the selection of an author or authors, who will preferably have had teaching experience, the planning of the manual begins. The purpose of the manual, the target group, and the content should already have been decided by an editorial committee. The organization of the manual will be quite different in each case. In some countries, instruction manuals for teachers are complemented by workbooks and practical exercises for trainees. In others, manuals are used for self-instruction, and contain questions and answers to assist health workers in problem-solving. As far as possible, effective local practices should be respected.

The writer should plan an outline and then produce a detailed list of contents. A logical sequence should be decided on, depending on the way the reader is expected to use the manual. The material should then be broken down into short, self-contained sections. It is not necessary to use traditional textbook headings; health workers in the field are, to some degree, decision-makers, so the headings of sections should be as functional as possible (e.g., “How to deal with a child suffering from diarrhoea”). The original outline and draft sequence may have to be modified as the manual takes shape.

The text should be interspersed with examples or case studies which tie concepts or instructions to local experience. If the teaching of others is covered, the reader should be given advice on what to teach as well as suggestions on how to teach it. The learning process can often be strengthened if flow-charts, questions and answers, illustrations, or tables are included. Illustrations should be alongside the text to which they relate, and they should be readily comprehensible to the reader. The fact that the writer can understand an illustration is no guarantee that the reader will do so. Short sentences and simple terms should be employed wherever possible, and complex numbering systems should be avoided.
When the draft is completed, it should be tried out on a colleague, who should be told what the purpose of the manual is and for whom it is intended. The colleague’s assessment should be duly noted and any changes that seem appropriate should be made.

A title page and a list of contents should be followed by an introductory statement for the user, e.g., “This manual on maternal and child health is intended as a source of reference for use by medical assistants in the field”, or “This booklet on how to promote better nutrition and health in the community is intended to be used by community health workers during their practical training”. Finally, an index should be prepared, containing only items that the user will need to look up. Multiple page numbers (e.g., diarrhoea: 12, 14–16, 123–125, 207–208, 242) can be very confusing, so the index should be broken down according to easily understood subheadings (e.g., diarrhoea: causes 14–16, treatment 123–125, and so on).

Testing a draft manual

The key people in the field-testing of materials are the teachers and supervisors of the intended users. This brings us to the important matter of the training of teachers and supervisors in the effective use of materials. Many teachers are or will become authors of manuals. All teachers and supervisors have a role to play—in consultations about content, in field-testing draft manuals, in helping students and health workers to use manuals effectively, in providing regular feedback on their use, and in periodic evaluations prior to the development of new editions. If they feel personally involved, they will help to ensure that the materials achieve their purposes.

Field-testing involves the selection of several groups of intended users. The readers should work through the manual, supervised as far as possible by a teacher, and should mark sections or concepts which are not clear to them. All difficulties should be noted by the teacher and talked over with each reader. The views of readers on illustrations and other supporting devices should be sought. Where there is an index, the ability of the user to look things up should be tested. Finally, the readers should meet the teacher or supervisor and the usefulness of the manual should be discussed in relation to its purpose. The writer should participate in at least some of these discussions.

There is certain to be a consensus of opinion on certain aspects of the text—its readability, usefulness as a practical instrument, and relevance to the tasks that the health workers have to perform or the decisions they have to take. All of this information should be collated by the writer and the text should be modified if necessary. The changes ought not to be very great if the writer has borne in mind the purpose of the manual and the educational level and experience of the intended users.

Certain additional tests can be applied to a draft manual. They include that of the “Fog index”, which gives a measure of the complexity of the text in relation to the educational level of the user, and the “Cloze test”, a technique for measuring readability (2). These tests provide supplementary data.
but cannot replace direct field-testing with intended users.

**Editing**

Assuming that the draft manual has been approved by an editorial committee as relevant, accurate and usable by the target group, the process of copy-editing begins. The frequent retyping of a draft is a tedious process and numerous typing errors may occur. By using a word processor it is possible to save much time; texts can easily be modified in this way and new print-outs can be provided for writers, teachers and editors. Despite certain problems, this is a field of high technology which is entirely appropriate in the Third World.

The editor’s tasks also include ensuring that good quality originals of illustrations, photographs and tables are made, enlarged or reduced to fit in with the text, and inserted in their correct places, experimenting with spacing and with headings of chapters and sections, preparing captions for illustrations so as to break up the text and make it more readable, checking the index once pagination is complete, and selecting a cover design.

**Printing**

Sufficient floor space should be available to permit paper-cutting, plate-making, printing, collating and binding. If a ministry of health does not have its own production facilities, it may be that spare printing capacity can be found elsewhere in the health sector or in other sectors. An alternative would be to use commercial printers. However, materials for health workers tend to be produced in short runs, which in general are uneconomic. Moreover, there will be several drafts of any given manual, including copies for testing purposes, and therefore a small printing facility is likely to be the cheapest solution. It should also be remembered that other people’s facilities always give priority to their own needs, and consequently the production of manuals could be greatly delayed.

It is important to order supplies in good time because of the long delays that may occur in delivery. Requirements should be calculated at least a year in advance. Given the numbers of users and the approximate lengths of manuals or other texts, a reasonably accurate estimate of requirements can be made. At the end of a year’s operation, the manager of a printing unit can review his planning and make adjustments for the next period if necessary. Supplies should be ordered every six months or so; urgent orders for delivery by air raise the cost and indicate inefficient planning. Training courses for managers, or on-the-spot guidance by experienced staff, are essential in the very early stages of the production of health learning materials. Training should cover the management of and communication with other staff, as printing is a team operation.

**Distribution**

In many countries, distribution is effected using the ordinary supply routes to hospitals, health centres and health posts. This is especially appropriate where reference
materials for field staff are concerned. In other cases, the postal system may be used. Whichever method is employed, a detailed list of addresses must be prepared and a system developed for confirming receipt. The World Health Organization's experience in the distribution of publications to training schools through ministry of health channels has shown how unreliable this method can be without constant follow-up. A central decision has to be taken on whether to levy a charge on some or all recipients of manuals and other publications. Invoicing and the collection of money present a considerable administrative burden. The creation of a revolving fund for the purchase of supplies and the subsidizing of new productions can be advantageous. This practice has been applied successfully by the Pan American Health Organization. The current tendency in national projects for health learning materials is to issue them free of charge to trainees and health staff, in response to the urgency of the need. The possibility of introducing a commercial element should, however, be borne in mind. If correspondence courses, with or without radio backup, are introduced, a detailed, constantly updated, computerized list of names and addresses of health staff is again required, and the system of follow-up should be tightened to permit regular exchange between teacher and learner.

**Evaluation**

Evaluation is an important element in the cycle of manual production. The real test is: “How useful has it been to its readers?” It may be that a manual is out of print, and that the opportunity is being taken to revise the text. In any case, an edition of a manual has a limited life span, depending on the subject matter. Five years is a reasonable maximum period between revisions. A new version should not only cover new developments but should also incorporate improvements based on user experience. Hence the importance of a close relationship between writers and editorial committees on the one hand, and teachers and supervisors on the other. The latter can provide regular feedback on the experiences of users with manuals. This continuous assessment is an essential component of evaluation, and its effectiveness depends on the degree of collaboration between writers and users. A detailed enquiry should be carried out by the editorial committee responsible for a manual when the time comes for a new edition; to this end, a questionnaire can be sent to teachers, supervisors and a sample of users so as to provide a measure of the manual's usefulness as well as of the use made of it. Suggestions for improvements should be invited. This should be followed up by a series of field visits by the intended author of the new edition, who will thus be able to discuss comments and suggestions with health staff. Valuable additional information may emerge as a result of this personal contact. It is then the responsibility of the editorial committee to provide details of new concepts and techniques for inclusion in the manual.

Health care, in the context of national health-for-all strategies, is constantly changing. It should therefore be the aim of any project on health learning materials to improve the quality and update the content of all its products. Careful evaluation is the only way to ensure this.

**References**