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GLOBAL
PROGRAMME
ON AIDS

ADAPTING WHO GUIDELINES FOR THE
CLINICAL MANAGEMENT OF HIV INFECTION
TO COUNTRY NEEDS



WORLD
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4. The fourth part of the document is a letter from the editor to the author, dated 10/25/1954. The editor expresses interest in the author's work and suggests that the author submit a paper for consideration.

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Introduction

Experience has shown that treatment guidelines developed for a particular context cannot be fully or effectively implemented in another context until they have been thoroughly reviewed by the local users and modified, where appropriate, to suit the local cultural, social and economic conditions.

This is particularly true in the case of guidelines for the clinical management of HIV infection which must take into account the differences between countries in disease presentation, resource availability and health infrastructure.

WHO's *Guidelines for the Clinical Management of HIV Infection in Adults and in Children* were developed and refined by AIDS clinicians from the developing and developed world. They have been used in many countries to provide the basis for standardizing, and where possible, improving the care of patients with HIV-related diseases. They may be used as they are or they may be modified to suit local conditions.

This guide has been designed to assist countries in the adaptation of WHO's *Guidelines for the Clinical Management of HIV Infection in Adults and in Children* for national/local use. One of the most successful strategies for adapting the Guidelines has been through national or programme-based workshops using a technique called the Nominal Group Process.

Participants in these workshops include health service practitioners and managers, representatives from the ministry of health, the national AIDS control programme, the essential drugs programme, and NGOs. For the successful adaptation and use of the guidelines, it is essential that representatives from the groups who will ultimately use them (doctors, nurses or health workers) be actively involved.

The facilitator who is engaged to manage the Nominal Group Process should be familiar with the clinical management of HIV and should have some experience with the Nominal Group Process. The skill and professional mix recommended for this workshop requires that the facilitator be particularly sympathetic and supportive of the group process.

Experience has shown that a minimum of three months preparation time is needed from the initial planning meeting to the start of the workshop. Another three months will probably be needed to finalize and produce the guidelines, before any systematic training of staff can start.

The activities that need to be undertaken in order to develop national guidelines are presented in this document in chronological order as shown on the next page.

- 1. Appointment of a coordinator**
- 2. Initial planning meeting**
- 3. Activities undertaken in preparation for the consensus workshop**
- 4. The workshop itself**
- 5. Implementation/follow-up.**

The full scope of implementation activities that will have to be undertaken once the guidelines have been produced, are not described in detail in this document but the essential tasks are listed. The annexes to this document consist of practical exercises for use at the consensus workshop.

Copies of:

- *Guidelines for the Clinical Management of HIV Infection in Adults*
(WHO/GPA/IDS/HCS/91.6; 86 pages) and
- *Guidelines for the Clinical Management of HIV Infection in Children*
(WHO/GPA/IDS/HCS/93.3; 88 pages)

can be requested from:

Global Programme on AIDS
Documentation Centre
World Health Organization
1211 Geneva 27
Switzerland

1. First steps

1.1 Appoint a coordinator

A coordinator should be appointed to oversee the process of the development of national guidelines (i.e. the adaptation of WHO's *Guidelines for the Clinical Management of HIV Infection in Adults and in Children* to the local situation). His/her responsibilities will include the initial planning meeting, the preparatory activities prior to the consensus workshop, the workshop itself, and possibly, some of the first implementation activities. In the interests of coherence and efficiency, it is likely therefore, that the coordinator will need to be engaged for a period of at least six months.

1.2 Organize a planning meeting

The coordinator will call a planning meeting with staff that will be involved in the use of the guidelines. It is proposed that participants (a maximum of ten) include representatives from: the National AIDS Control Programme, the Ministry of Health, medical/nursing schools, the National Essential Drugs Programme, the Regional/District Health Officer, and the Global Programme on AIDS. The final choice of participants may depend on the intended users.

Below is a proposed agenda for the meeting to plan the development of national guidelines.

MEETING AGENDA

1. Introduction of participants
2. Purpose of proposed consensus workshop, including identification of intended users of guidelines
3. Review of proposed workshop agenda
4. Time and venue of workshop
5. Tentative list of participants and proposed secretariat of workshop
6. Review of, and workplan for, preparations for the workshop
7. Facilitator requirements
8. Draft budget
9. Any other business

2. The planning meeting for the consensus workshop

2.1 Identify the intended users of the guidelines

In order to ensure that the guidelines are appropriate to the national or local context, the intended users need to be identified. The workshop needs to establish where the guidelines are likely to be used and who is likely to use them – for example, doctors, nurses, primary health care workers, in health centres, mission hospitals or outpatient clinics.

WHO's *Guidelines for the Clinical Management of HIV Infection in Adults and in Children* are designed to apply to three levels of health care facility, based on diagnostic capability:

- Level A: no diagnostic tools (e.g. health centre)
- Level B: basic laboratory facilities including X-ray available (e.g. district hospital)
- Level C: improved laboratory facilities (e.g. referral or central hospital).

The correspondence between diagnostic capability and institution as outlined above, is not of course, absolute. In some developing countries, for example, the outpatient clinic of a referral hospital offers care that corresponds to Level A of the guidelines. The *level* rather than the institution determines what is possible in clinical management.

It is important to bear in mind that in some rural areas, or in situations of extreme poverty, HIV patients may not be cared for within a health setting at all, but at home. In this case, some thought should be given to who the health care providers will be and how they may be guided in their care-giving.

Furthermore, it may be useful to remember that the subject of these guidelines – clinical management – is only part of the care provided to HIV-infected people. Ways of providing other kinds of care such as psychosocial support need to be addressed separately.

2.2 Draft a programme for the consensus workshop

The draft programme presented on the next page has been successfully used in several different countries, but it should be adapted to fit local needs. Testing has shown that four to five days are usually necessary to reach consensus.

2.3 Select participants for the consensus workshop

Participants should not number more than 15-20, and about half of them should be involved in the clinical care of patients with HIV infection and AIDS. Others include pharmacists, laboratory specialists, administrators and possibly the trainer who will

National Consensus Workshop DRAFT PROGRAMME

DATE:
TIME:

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
08:30	introduction of participants	08:00 Group work (consensus)*	08:00 Group work (consensus)*	08:00 Group work (consensus)*	08:00 Plan of action - implementation, review procedure This would include defining dates by which actions would be taken and defining who would be responsible for review activities. Also, a mechanism for feedback of review findings to all participants.
09:00	Official opening - Principal Secretary. Introduction by AIDS Central Programme Manager				
10:00	Tea/coffee break	10:00 Tea/coffee break	10:00 Tea/coffee break	10:00 Tea/coffee break	10:00 Tea/coffee break
10:30	Epidemiological analysis with consideration of projected trends of HIV and AIDS	10:30 Group work continued*	10:30 Group work continued*	10:30 Group work continued*	10:30 Closing summary
11:00	The clinical situation/morbidity pattern				
11:30	Situation analysis of national drug supply system				
12:30	Discussion				
13:00	LUNCH	13:00 LUNCH	13:00 LUNCH	13:00 LUNCH	
14:00	Short introduction to WHO Clinical Guidelines and consensus work	14:00 Group work continued*	14:00 Group work continued*	14:00 Final review of Clinical Guidelines - levels of care, general recommendations	
14:30	Simulation exercise on Nominal group process				
15:30	Tea/coffee break	15:00 Tea/coffee break	15:00 Tea/coffee break	15:00 Tea/coffee break	
16:00	Discussion and consensus on treatment options: - level of care (health centres, district, central) - symptomatic/disease-oriented approach	15:30 Group work continued*	15:30 Group work continued*	15:30 Recommendations to include training, logistics and possible legal requirements	
18:00-20:00	Reception	16:00 Plenary	16:00 Plenary		

* See section 4.2 on the Nominal Group Process

be facilitating the consensus workshop. If it is felt that for certain purposes (the planning of implementation, for example) more participants are needed, then the group can be divided into two groups of up to 15 participants each.

A suggested selection of participants for a national workshop is shown below.

National Consensus Workshop LIST OF SUGGESTED PARTICIPANTS				
<i>The participants should be chosen to ensure wide professional, administrative and geographical representation. The total number of participants will therefore depend also on the size of the country, but should not exceed 15-20.</i>				
MINISTRY	CENTRAL	REGION	DISTRICT HOSPITAL	RURAL HOSPITAL HEALTH CENTRE
AIDS Control Programme Manager Chief Pharmacist	Senior Medical Superintendent	Regional Health Officer	District Health Officer	Medical Assistant
Controller of Technical Support Services	Nurse Supervisor	Regional Nurse	Clinical Officer	Community Health Nurse
Essential Drug Programme	Central Medical Store	AIDS Coordinator	District Nursing Officer	
Controller of Nursing Services	Infectious Disease Specialist Paediatrician		NGO Representative	
Senior Representative of School for Health Sciences	Medical Officer			

2.4 Identify essential information for the workshop and plan for its preparation

Basic epidemiological and morbidity data for the local area, region or country will be needed during the workshop in order for participants to be able to produce guidelines that are appropriate and useful in the local context. At the planning meeting, participants should identify exactly what data are needed and the coordinator should delegate the task of gathering this information, to an appropriate person. This could be a doctor working in a local hospital who will be a participant at the workshop. Only simple data collection and calculations are required.

2.5 Draft a budget for the consensus workshop

A standard budget is presented below:

National Consensus Workshop BUDGET	
DATE:	
LOCATION:	
1) PER DIEM	
a) N National participants at \$ per night N × \$ × nights.....	\$ _____
b) N Facilitators at \$ per night N × \$ × nights.....	\$ _____
c) N Support Staff at \$ per night N × \$ × nights.....	\$ _____
Subtotal.....	\$ _____
2) TRANSPORTATION	
a) N Participants × km – return, or	\$ _____
b) N Participants × lump sum.....	\$ _____
Subtotal.....	\$ _____
3) SUPPORT	
a) Conference room.....	\$ _____
b) Stationery, pencils etc.....	\$ _____
c) X Fuel.....	\$ _____
Subtotal.....	\$ _____
4) REFRESHMENT	
a) Y days × no. of participants – twice a day.....	\$ _____
Subtotal.....	\$ _____
5) BUDGET SUMMARY	
1. Per Diem Subtotal.....	\$ _____
2. Transportation Subtotal.....	\$ _____
3. Support Subtotal.....	\$ _____
4. Refreshment Subtotal.....	\$ _____
GRAND TOTAL.....	\$ _____
(At current rate of exchange equal to US\$ XXXXX)	

3. Preparation for the consensus workshop

3.1 Collect epidemiological and morbidity data in preparation for the workshop

In order to effectively plan resources for clinical care, including any estimate of drug requirements, the number of people expected to seek care because of their HIV infection has to be estimated and the morbidity pattern has to be identified. There are several ways this can be done, but the most realistic estimates are achieved by combining several distinct sets of data.

3.1.1 Determining the number of people with HIV disease

Method 1: HIV prevalence data

A combination of demographic and HIV seroprevalence data is one possible approach to determining the number of people seeking care because of their HIV infection. One way of estimating the number of adults with HIV infection served in government hospitals is set out below.

SAMPLE ESTIMATE		
A. ESTIMATE OF ADULTS WITH HIV DISEASE		
1) Total national population		10 000 000*
2) Adult population (15-44 years) percentage	40.00%*	
3) Adult population (15-44 years) (% of No. 1)		4 000 000
4) HIV seroprevalence in sexually active adult population	15.00%*	
5) HIV-infected adult population (% of No. 3)		600 000
6) Estimated ratio of HIV infection to AIDS cases	1:20*	
7) Expected adult AIDS cases surviving		30 000
8) Ratio of symptomatic HIV** to AIDS	3.5:1*	
9) Estimated adult symptomatic HIV (not yet AIDS)		105 000
10) Total adult HIV-related disease (No. 7 + No. 9)		135 000
B. ESTIMATE PERSONS SEEKING CARE		
11) % of cases that seek treatment	80.00%*	
12) Cases seeking treatment (% of No. 10)		108 000
13) % treatment in government facility	70.00%*	
14) Number of cases treated in government facility (% of No. 12)		75 600
* Data from primary sources needed for calculations.		
** Those individuals with HIV-related illnesses who have not yet progressed to full-blown AIDS.		

Using different "primary data" the same estimation can be made for children or for individual hospital catchment areas, regions or districts.

Method 2: Reported AIDS cases

Although the number of reported AIDS cases is often available, for the purpose of estimating HIV disease, these data are not very useful because:

- there is underreporting of AIDS cases
- there is underdiagnosing of AIDS cases
- medical care for patients with HIV infection starts long before the development of AIDS.

3.1.2 Determining morbidity pattern of HIV disease

Method 1: Morbidity survey

In many places symptoms or diseases associated with HIV infection will not be recorded or recording will be incomplete. In these places a "mini-survey" in some representative health facilities (e.g. hospital, health centre) over a defined period (e.g. four to six weeks) will provide the necessary information.

An example of a likely outcome of such a "mini-survey" is shown below.

Symptom/disease	Per 100 HIV infections	Episodes per year
diarrhoea	50	2
oral thrush	65	3
fever	71	4

Method 2: Reported Cases of AIDS

As mentioned above, AIDS cases are often underdiagnosed and underreported. Where AIDS case reports are available, they provide useful information about AIDS-defining morbidity. However, for the planning and provision of supplies/resources for clinical care for HIV-infected patients, they are of limited use. This is because the information available is limited to the clinical end-stage of HIV infection (AIDS) and only initial AIDS-defining clinical presentations are recorded.

3.2 Draft an implementation plan for presentation to the workshop

Improving patient care is the ultimate objective of developing guidelines for clinical management. Once the clinical guidelines have been developed, a number of implementation activities must be undertaken:

- Editing, printing, distribution of guidelines
- Training of health personnel in the use of the guidelines if necessary
- Estimating drug requirements and supply
- Monitoring and reviewing standards of care.

The coordinator will need to think about these issues prior to the workshop in order to present a reasonable plan of implementation to the participants. Following review and approval by participants during a workshop session, the coordinator will need to prepare a workplan and delegate the various implementation tasks to appropriate people or agencies.

A sample plan for implementation and follow-up activities is shown below.

SAMPLE IMPLEMENTATION PLAN			
MONTH	ACTIVITY	OBJECTIVE/RESULT	RESPONSIBLE
0	Consensus workshop	Draft clinical guidelines	MOH, NACP
1 - 2	Editing		NACP
3 - 4	Field Test	Finalize guidelines	NACP, MOH
3 - 5	Alterations to standard treatment norms	New treatment/specifications in the NDF (National Drug Formulary)	NACP/NEDP, MOH
3	Drug supplement estimation	AIDS drugs quantified and costed	NEDP
4	Publication of norms	National document	NACP, NEDP
5 - 12	Dissemination of norms	Health centre, district and central hospital	NEDP, NACP
6 - ongoing	Training in standardized treatment	Health care personnel	
3 - ongoing	Purchase and supply of drugs	Distribution to health care centres	NEDP, MOH
10 - ongoing	Monitoring of drug use	Feedback on drug utilization	NEDP

NEDP: National Essential Drugs Programme
 MOH: Ministry of Health
 NACP: National AIDS Control Programme

3.3 Make practical arrangements for the workshop

3.3.1 Key tasks to be undertaken well in advance of the workshop:

- Obtain necessary approval and funds for the workshop
- Select and invite the participants; this often requires extensive follow-up to ensure that the selected participants attend. The invitation letter should describe the objective and methodology of the workshop.
- Engage the facilitator(s)
- Select and reserve the workshop site
- Arrange for travel, room and board
- Photocopy/duplicate participants' handouts and gather all necessary training materials and resources.

3.3.2 Workshop site

The site should have adequate meeting space and, if necessary, room and board facilities for the participants.

3.3.3 Facilitators

Where there are two or more facilitators, they should meet prior to the workshop, at least once with the coordinator, to plan how the workshop will be conducted. Teamwork will be essential – the facilitators must reach a mutual understanding about how the sessions will be run and about who will do what. Preparation will certainly be needed for certain sessions. Debriefing and post-session evaluation between the facilitators will be vital.

3.3.4 Arrival at the workshop

- Have someone ready to greet participants.
- Distribute all the materials to each participant.
- Issue allowances and accommodation details as necessary.

3.3.5 Workshop material and resources

Materials needed for the workshop include notebooks, paper and pens (for the participants), flip-charts and flip-chart paper, markers, tape, paper clips, stapler and staples, scissors, envelopes, paper and typewriter.

For groups not familiar with using either clinical algorithms or the Nominal Group Process, simulation exercises are available in the annexes, from which facilitators can select appropriate activities.

3.4 Obtain background documents for the consensus workshop

The following documents should be provided to every participant prior to the workshop:

- *Guidelines for the Clinical Management of HIV Infection in Adults*, WHO/GPA/IDS/HCS/91.6
- *Guidelines for the Clinical Management of HIV Infection in Children*, WHO/GPA/IDS/HCS/93.3.

These documents are available on diskette (DOS – Harvard Graphics and WordPerfect; Macintosh – MacFlow and WordPerfect). If there are computer facilities at the worksite, it will be useful to obtain the diskettes for the workshop so that, if time permits, modifications to flow-charts and text may be rapidly incorporated and reviewed by the group.

The following reports are needed for the workshop:

- Report on the HIV epidemic and number of expected persons seeking care because of HIV (in country, region, area, etc.) including where they are most likely to be seen (health centre, hospital etc.)
- Report on the morbidity pattern of HIV disease.

If such reports are not available, the information must be gathered prior to the workshop, by conducting an informal mini-survey, for example of hospital admissions, numbers of beds occupied by AIDS patients, or suspected and/or confirmed HIV infections seen at outpatient consultation (see section 3.1).

The following report is needed for the assessment of drug needs, which may be undertaken either during the workshop or if time does not allow this, very shortly afterwards.

- Report on drug supply and budget (in general, not specifically related to AIDS).

The following documents should be available for consultation and use during the workshop:

- National Drug Formulary
- National Standard Treatment Guidelines (if available in a country)
- *WHO Drug Information. Update on AIDS*. Vol. 5 No. 1, 1991: 14-35
- *The use of essential drugs*. Geneva, World Health Organization, 1992, WHO Technical Report Series, No. 825.

The following documents may be useful, and are available from the World Health Organization, 1211 Geneva 27, Switzerland:

- *Treatment of Tuberculosis – Guidelines for National Programmes*, WHO/TUB/91.161
- *Consensus Statement from the WHO/UNICEF Consultation on HIV Transmission and Breast-Feeding*, WHO/GPA/INF/92.1

- *Immunization Policy*, 1994 (in preparation).
- *A Manual for the Treatment of Diarrhoea*, WHO/CDD/SER/80.2 Rev. 2, 1990.
- *Recommendations for the management of sexually transmitted diseases*, 1994 (in preparation).

4. The consensus workshop itself

The workshop is based on three key assumptions:

- Adults function best when they are actively involved in the workshop process – doing things, discussing, analysing, rather than passively listening or observing activities.
- Workshop participants learn from each other as well as from technical experts.
- Everyone's experience is equally valuable and important, and the workshop process should recognize and use this.

4.1 Adapting clinical algorithms

Where appropriate WHO guidelines for HIV infection are presented as clinical algorithms. A clinical algorithm (or flow-chart) is the graphic presentation outlining the stepwise procedure for making decisions about the diagnosis and treatment of a clinical problem. When adapting a clinical algorithm the reader should review the accuracy of the logic and the content as it relates to the local situation.

Participants should have thoroughly examined WHO's *Guidelines for the Clinical Management of HIV Infection in Adults and in Children* before the workshop and should therefore be familiar with clinical algorithms. They may nevertheless find it useful to do some practical exercises in using, reviewing and constructing algorithms.

Annex 1 (Using algorithms) provides useful material for this purpose, using clinical algorithms as examples. Annex 2 (Writing an algorithm – practical exercise) provides instructions for an exercise (unrelated to clinical practice) which will allow participants to gain insight into algorithmic logic.

Participants should be reminded that *adaptation* and *not rewriting* is the aim of the workshop. Annex 3 (Writing a clinical algorithm) provides an outline of the steps involved and may be helpful to participants if a large portion of an algorithm requires modification.

4.2 The Nominal Group Process

The key element in the process of developing national guidelines which can be used effectively and which will contribute significantly to improving patient care, is the *building of consensus* between health professionals, health ministry officials and public health administrators. Only when the guidelines reflect the views of all these groups and are perceived to be useful, appropriate and feasible, will they be given support and effectively implemented.

The guiding principle of the Nominal Group Process (NGP) is to build consensus through a variety of exercises and techniques such that decisions are taken which reflect each participant's and the majority's viewpoint, rather than, for example, a dominant minority's viewpoint.

The technique has been used successfully to develop national guidelines, using WHO's *Guidelines* as the basis for consensus reaching. The NGP is designed to use every participant's opinion equally and avoid circular and inconclusive technical discussions of difficult issues. It should be led by a facilitator who has participated in at least one Nominal Group Process. This process is particularly useful for those parts of the guidelines that are presented in an algorithm (flow-chart) format. The essential steps of a Nominal Group Process are listed below.

4.2.1 Listing comments

Review the clinical algorithm first for the logic of the decision-making and then for the content. Some of the relevant questions are:

- Are all important steps present?
- Is the algorithm logically consistent?
- Are terms used clear and appropriate?
- Can the recommendations be reliably implemented in the intended clinical setting?
- Are controversial decisions annotated?
- Are information and data accurate and appropriate (i.e. medication, dosage, laboratory tests, diagnostic signs)?

Allow 10 to 15 minutes for participants to list in writing all their comments about one chapter of the guidelines.

4.2.2 Collecting comments

The facilitator writes down on a flip-chart all of each participant's new comments. Comments are best formatted as suggested corrections. All of the first participant's comments are written down, then each subsequent participant's not yet listed comments are added. The facilitator should arrange comments according to algorithm box number or annotation letter and page number. Avoid discussion at this stage, and only ask for clarification if comments are unclear or vague.

4.2.3 Summarizing comments

Try to group similar comments. For example, all graphics comments can be marked by a star, all comments about a particular drug can be marked by a colour.

4.2.4 Prioritizing

For each comment listed on their flip-chart, the group votes on the following question: "Do you agree with the comment?" Voting is then by group as well as by individual comment.

4.2.5 Discussion

Open discussion of any issues which appear to have been insufficiently covered.

4.2.6 Editing

Two editors are appointed from amongst the participants to incorporate the comments into the customized version. Editing rules: editors should incorporate comments that got a majority vote and exclude comments that did not. Edited versions should be returned to the group, for their comments and approval, within one month.

Compared to an open discussion the technique is time-saving and ensures input from every participant.

4.2.7 Adding new issues

During the workshop it may become apparent that the group wishes to add items that are not covered in WHO's *Guidelines*. If time is short, it may be advisable to either:

- assign the task to a small group that will present their proposal to the whole group at the end of the workshop, or
- assign the task to be done after the workshop and then distribute it for comments.

5. Implementation/follow-up

The tasks of the coordinator, and perhaps some of the participants, are not complete once the workshop is finished. Follow-up activities will include:

- Monitoring progress of editors
- Arranging for printing, storage and distribution of national guidelines
- Preparing interim project report
- Ensuring tasks assigned at the workshop are completed by nominated groups or individuals
- Transferring responsibilities to training group and essential drugs programme
- Monitoring progress/field-testing of the guidelines in selected districts after six months or one year.

Field-testing of the guidelines should look at the feasibility of implementing and using the guidelines in the local clinical setting and should identify the more obvious mistakes and omissions. Clinical outcome studies have to be conducted in a formal research environment and can be conducted independently of standard guidelines. (See also the sample implementation plan in section 3.2.)

Annex 1: Using algorithms

1. Individualized reading

Read the following description of a flow-chart/algorithm or decision map.

Where appropriate the guidelines are presented in the form of flow-chart algorithms or decision maps, which read from top to bottom and from left to right. They contain three differently shaped boxes, which have the following functions:

Clinical state or problem definition box: This box defines the clinical state or problem. This type of box usually appears at the beginning of an algorithm.



Clinical State box

Decision box: This box contains that information necessary for taking some sort of decision. It always has an entry path and two exit (yes and no) paths.



Decision box

Do box: This box indicates an action, which may be either therapeutic or diagnostic.



Do box

Small letters in square brackets (e.g. [a]) within a box refer to the annotations or comments printed on the facing page. These are an essential part of the algorithm, since not all of the information needed can be provided in graphic form or within the boxes. The boxes are also numbered for easy reference.

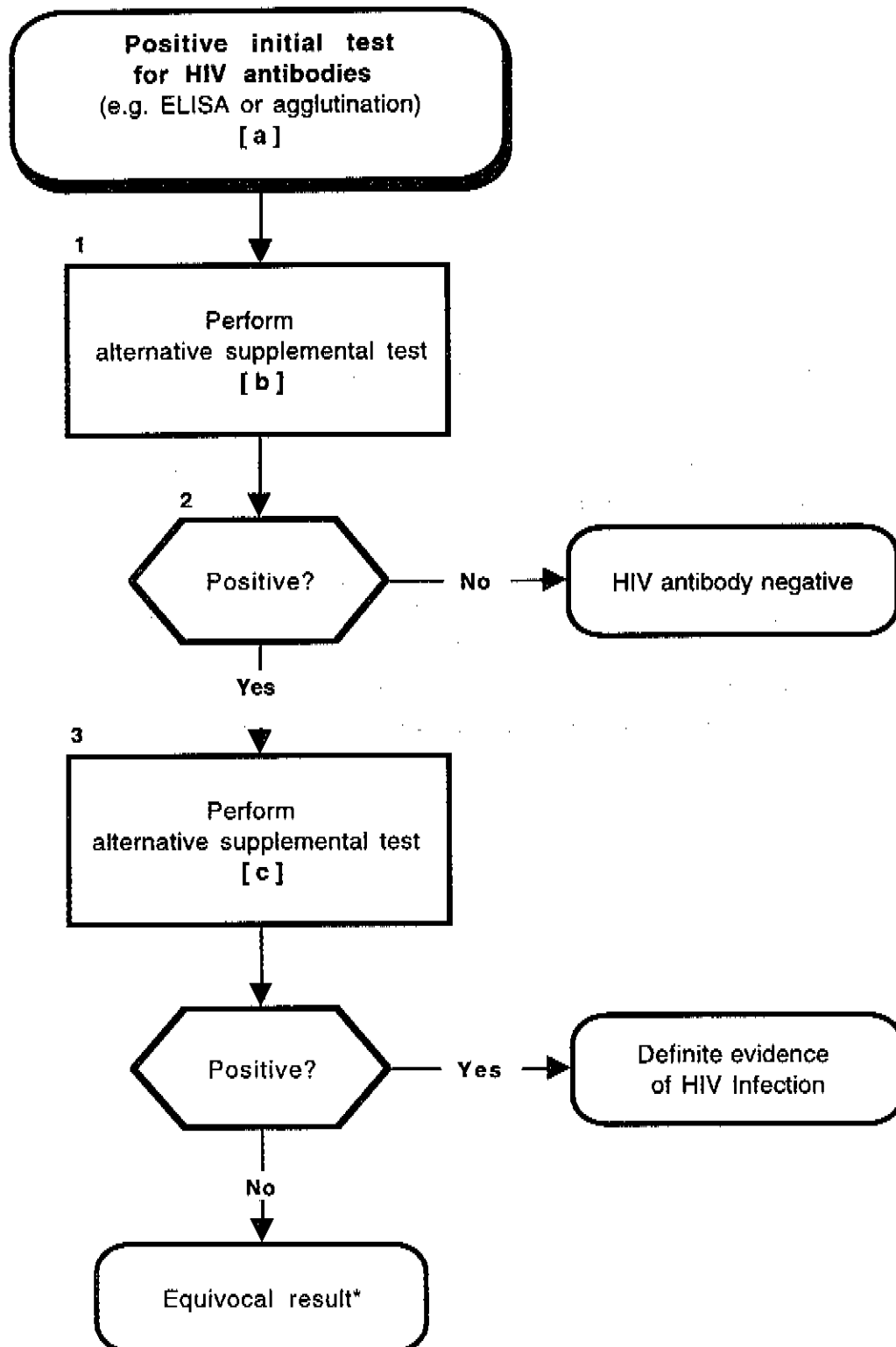
2. Work in pairs

With a partner, read the sample algorithm on the next page for “Laboratory evidence of HIV infection” and identify examples of each different kind of box.

Now check if you have both understood this sample algorithm by answering the following questions:

- A. If there was a positive result on the conventional supplemental test, how does the clinical state box read?
- B. If there was a negative result following an alternative supplemental test, what should be the next action?

Laboratory evidence of HIV infection



* The procedure described is strategy III for HIV testing, taken from:
Weekly Epidemiological Record, No. 20, 1992, pp. 145-149.

Annotations:

- a. The strategy for detecting antibodies to HIV is to undertake initial tests (sometimes referred to as screening tests) on a specimen of serum or plasma followed by supplemental tests (which have also been called confirmatory tests). Both tests and testing strategies should be evaluated under field conditions and in the regions where they are to be used prior to implementation.

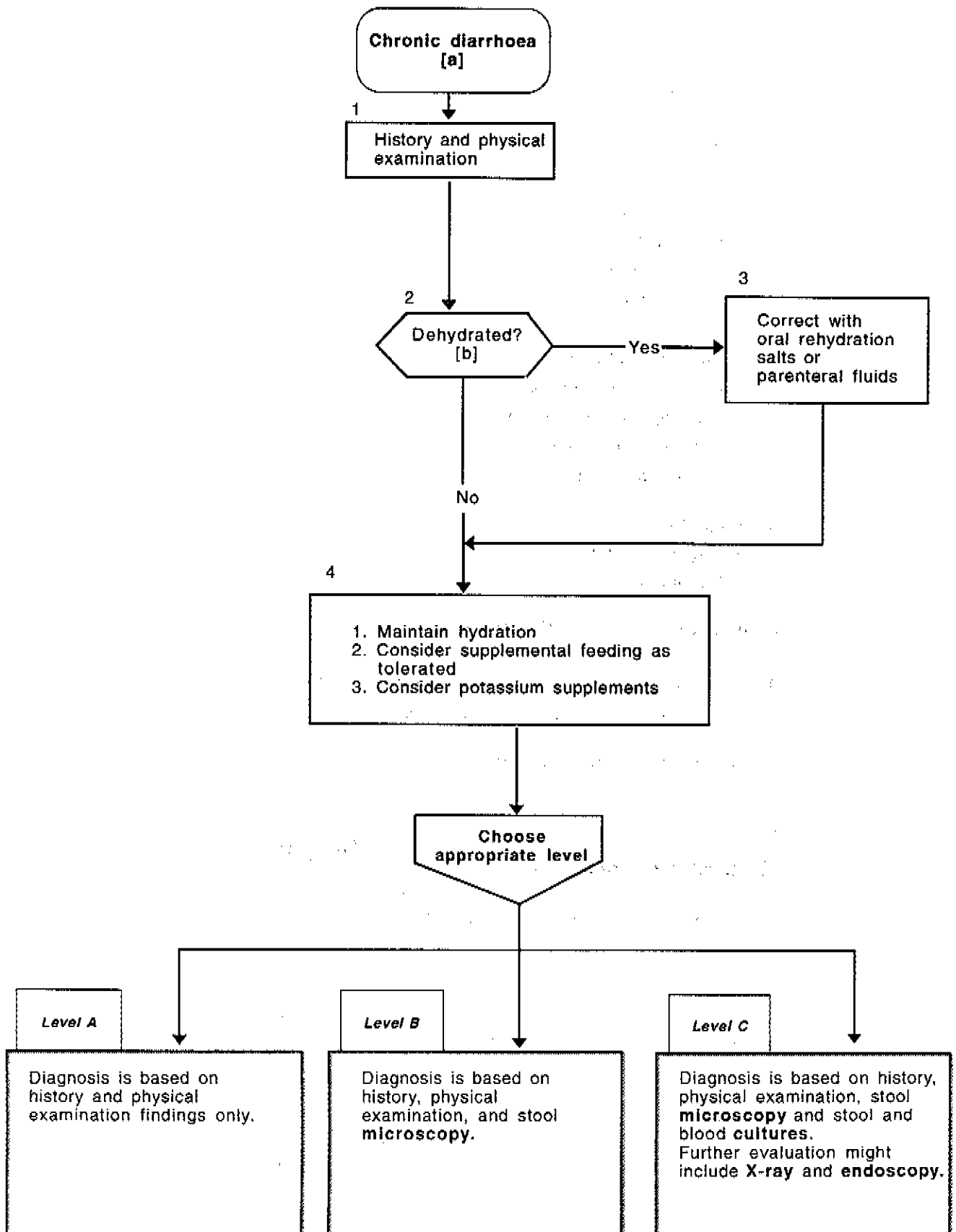
It is important to take into consideration relevant clinical and epidemiological information when reporting laboratory results.

Enzyme-linked immunosorbent assays (ELISAs) and particle agglutination are widely used as initial and supplemental tests. Currently available test kits are highly sensitive and specific, and identify specimens with reactive antibodies.

- b. Serum that is non-reactive in the first test is considered HIV antibody negative, as is serum that is reactive in the first test but non-reactive in the second.
- c. Serum that is reactive in the first and second tests but non-reactive in the third test is considered to be equivocal.

The three tests in this strategy should be based on different antigen preparations and/or different test principles. In the selection of HIV antibody tests for use in this strategy, the first test should have the highest sensitivity, whereas the second and third tests should have higher specificities than the first.

3. Review another algorithm: chronic diarrhoea



Annotations:

- a. **Definition:** Liquid stools 3 or more times a day, continuously or episodically for more than one month, in a patient with symptomatic HIV infection.

Diarrhoea occurs at some point in the clinical course of most HIV infections. The management of acute diarrhoea should follow standard treatment guidelines (see document WHO/CDD/SER/80.2 REV.2, 1990).

Etiology:

1. Infections:

- cryptosporidiosis
- *Isospora belli*
- *Giardia lamblia*
- *Salmonella* spp.
- *Shigella flexneri*
- *Campylobacter* spp.
- *Entamoeba histolytica*
- cytomegalovirus disease
- *Strongyloides stercoralis*
- *Mycobacterium avium* complex.

2. Malignancies:

- Kaposi sarcoma
- lymphoma.

3. Idiopathic (possibly HIV infection).

A list of the main causes in order of significance should be established in the light of available national or local information.

b. Assessment of dehydration:

Clinical features	Dehydration	
	Some	Severe
General appearance/condition	Restless, irritable	Usually conscious; apprehensive; cold, sweaty, cyanotic extremities
Pulse	Rapid	Rapid, feeble, sometimes impalpable
Respiration	Deep, may be rapid	Deep and rapid
Skin elasticity	Pinch retracts slowly	Pinch retracts very slowly (>2 seconds)
Eyes	Sunken	Deeply sunken
Mucous membranes	Dry	Very dry
Urine flow	Reduced amount and dark	None passed for 6 or more hours; empty bladder

Annex 2: Writing an algorithm – practical exercise

Purpose

To gain insight into algorithmic logic by organizing a set of well-known rules into an algorithm.

Objectives

At the end of this unit, you will be able to:

- create an algorithm;
- provide critiques of, and compare algorithms created on the same topic.

Summary

Each participant will independently write an algorithm designed to guide a driver through a traffic light intersection and the group will compare two or three sample algorithms. A decision table will be shown to further examine the logic of the algorithm.

Exercise

You are the Commissioner of Motor Vehicles, and your staff has been drastically reduced because of the national budget crisis. There will no longer be any road tests for issuing driving licences, and drivers will depend solely on algorithms to be taught the rules of the road. Write an algorithm telling a driver what to do when entering an intersection with a traffic signal.

When the algorithm is finished, read the following characteristics and see if the algorithm meets most of the criteria. Different algorithms can be compared and a sample algorithm solving this problem is shown at the end of the annex. Participants should note that there is no single correct solution and there will be differences between most algorithms.

To save time, this exercise can be done in pairs or small groups rather than individually.

Evaluating an Algorithm

When evaluating an algorithm, the following three sets of characteristics need to be considered separately.

1. Format or graphics:

- Is it legible and uncluttered?
- Does it read top to bottom, left to right?
- Are symbols used consistently?
- Are there at least two exit paths for each "question" box?
- Are the annotations, references and box numbers clear and consistent?
- Are any boxes, or sequence of boxes, repeated? Can they be condensed?

2. Accuracy of content, and logic:

- Are all important steps present?
- Are the boxes sequenced so that the most critical steps come at the top of the algorithm?
- Are obscure terms defined appropriately and accurately?
- Is information accurate?
- Are the "do" boxes unambiguous? Are the recommendations realistic for the intended purpose?
- Are all controversial points annotated?
- Are there any "endless loops"?

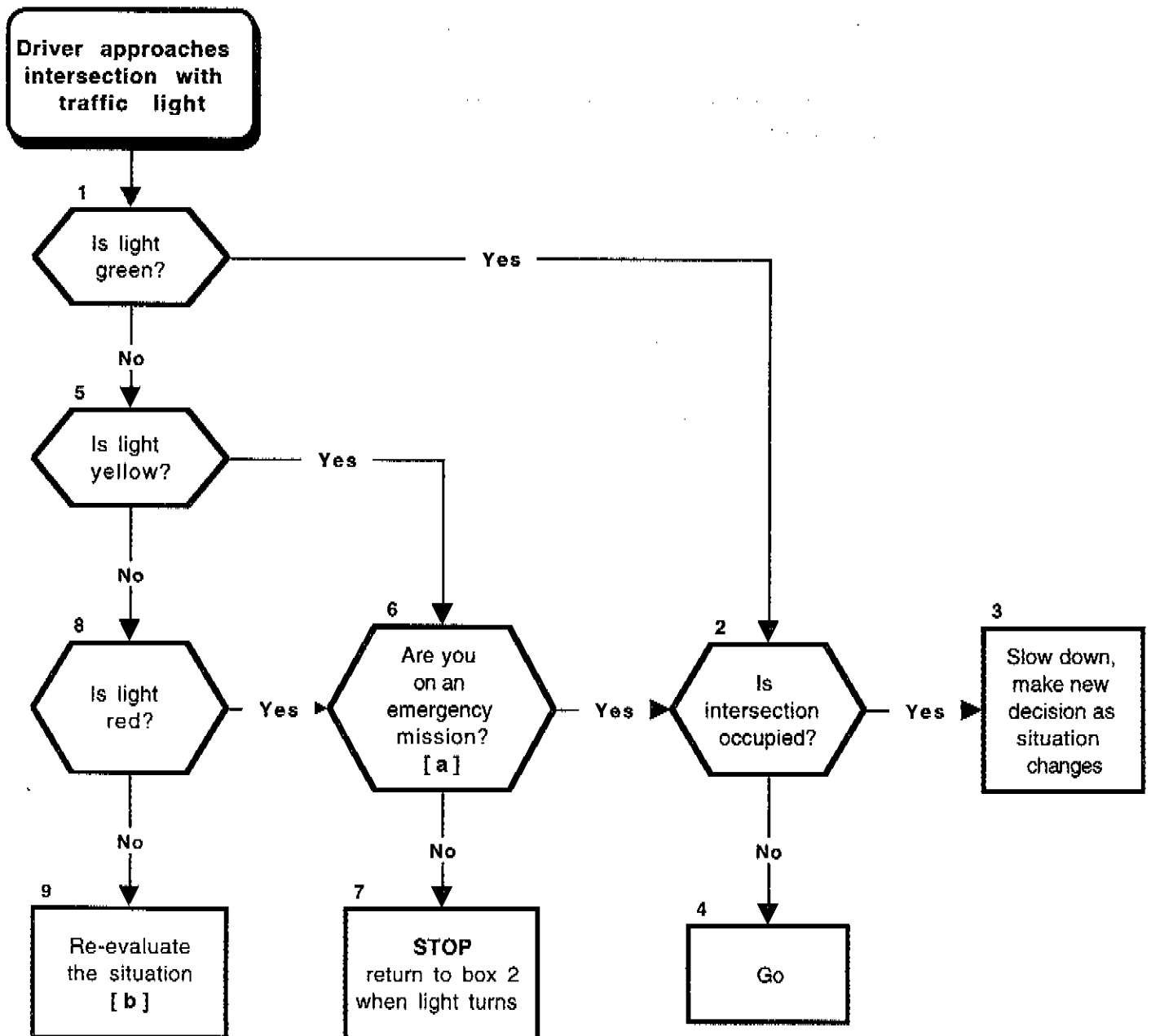
3. Reliability and validity

Reliability and validity relate to the reproducibility of outcomes using the algorithm, the purpose for which the algorithm is designed, and the consensus process by which it was developed. These concepts are too complex to be dealt with in this workshop.

Sample algorithm

On the next page is a possible solution for this exercise.

Traffic Light Algorithm



Annotations:

- a. An emergency mission is one in which a verifiable life-threatening condition is dependent on the driver's or passenger's speed of arrival at their destination.
- b. A light may be neither green, yellow nor red in the following situations:
 1. **Blinking signal** – Used at less-travelled intersections, and occasionally as default for malfunctioning signal. Flashing red means stop, proceed when intersection is clear. Flashing yellow indicates right of way but proceed with caution.
 2. **Red and yellow** – Pedestrian crossing with 4-way stop. Proceed when light turns green.
 3. **Non-functioning signal** – Come to full stop. Proceed with caution. In general, car on right has right of way.

Annex 3: Writing a clinical algorithm

Writing a clinical algorithm requires knowledge both of the formalities of algorithm formatting and logic (see Annexes 1 and 2), and an in-depth understanding of the clinical problem and the clinical environment for which the algorithm is intended. Translating clinical expertise and practical experience into a clinical algorithm often takes quite a few sheets of paper, and a good deal of thought.

The following outline is intended to help organize clinical information, and prioritize steps, to begin to draft an algorithm for the evaluation of a clinical problem.

1. Define the problem

- Who are the intended clinician (or non-clinician) users of the algorithm, and what are their skills in the area?
- What patient population is the algorithm meant to address? What patients should be specifically excluded from consideration (i.e. age, gender, prior history of disease, previously treated, recent onset of illness, etc.)?
- What are the available resources of the medical community that will be using the algorithm (for example, laboratory facilities and turnaround time, specialist availability)?

2. Differential diagnosis

- List all the possible causes of the signs or symptoms described in the "Clinical State Box".
- Review the pathophysiology of the clinical condition.

3. Sequencing the boxes

- Describe the patient population and problem which the algorithm is meant to address in the "Clinical State Box". It is often helpful to include an annotation here, to expand on the purpose of the algorithm, and to specify those criteria which should exclude certain patients from consideration in the algorithm.
- Present the diagnostic steps in the following order:
 1. Rule out emergency/urgent conditions
 2. Rule out most common in order of frequency
 3. Rule out less frequent causes
 4. Relegate rare causes to annotations
- Consider pathophysiological etiologies which might be less readily apparent to the user of the algorithm – e.g. referred pain syndromes.
- Alternate diagnostic and therapeutic steps.

4. Specify therapy

For all of the common causes of the clinical condition and their treatment, present in detail:

- Drugs and dosages
- Steps to monitor treatment response, if indicated
- “Cycles” or courses of treatment, if appropriate.

5. Specify end-points

- Specify end-points of therapy: define level of function, send home, send to hospital, etc.
- Specify end points of algorithm: refer for diagnostic examination, refer to specialist, refer to another algorithm, etc.

6. Annotations

Annotations are used to:

- Clarify a rationale or explain a controversy, with citations from the literature used to support the recommendation of the algorithm.
- Expand on a statement in an algorithm box, e.g. how to perform a procedure, possible side-effects of recommended therapy and when to monitor, etc.
- Explain clinical details not essential to the clinical algorithm, e.g. a relatively rare etiology.

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