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COUNTRY HEALTH PROGRAMMING  
IN EUROPEAN HEALTH PLANNING AND  
MANAGEMENT EDUCATION

Report on a Workshop

Vienna  
10 – 15 June 1979



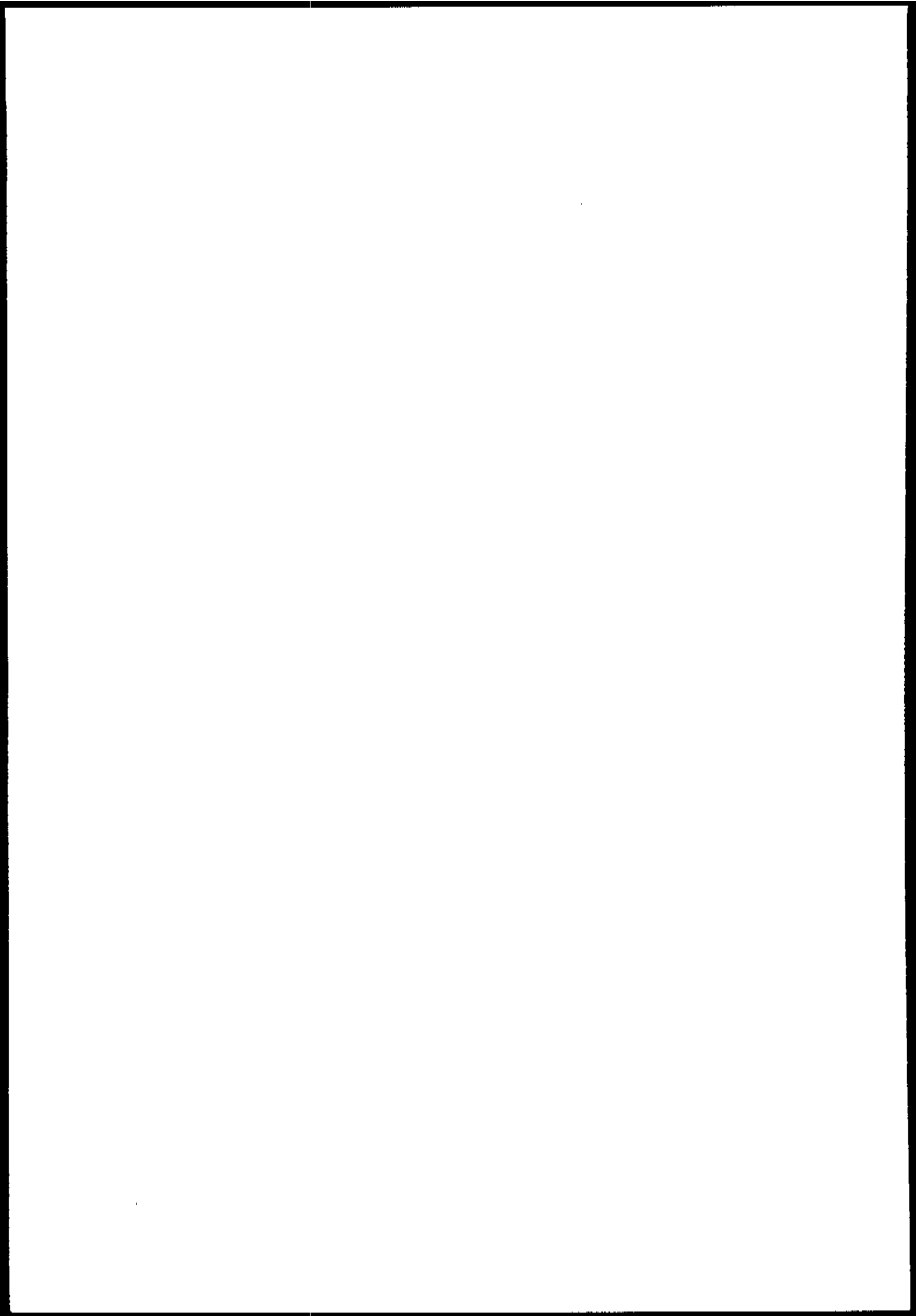
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## 1. INTRODUCTION

The Workshop on Country Health Programming in European Health Planning and Management Education was convened in Vienna from 10 to 15 June 1979 by the WHO Regional Office for Europe in collaboration with the Austrian Federal Ministry of Health and Environmental Protection and the Department of Hospital Administration of the City of Vienna.

With specific reference to the situation in the European Region, the principal objectives of the Workshop were:

- to discuss and review the methodology of country health programming (CHP) and consider its relevance to European health planning and evaluation;
- to advise on any changes necessary in applying the CHP approach to European countries, and make recommendations on its further development in this context;
- to consider the implications of introducing training in CHP in undergraduate and postgraduate education of health personnel, and make appropriate recommendations;
- to promote awareness of, and interest in, the CHP approach in relevant European centres for teaching and research in health service planning and management.

As a framework for its discussions the Workshop considered the experience of CHP and CHP-related exercises in Algeria, the United Kingdom (Scotland), Spain and Portugal, and other relevant health planning activities in the European Region.

The participants, who were from Austria, Belgium, Hungary, the Netherlands, Poland, Portugal, Spain, Sweden, the United Kingdom and Yugoslavia, had been selected to represent different professional backgrounds within a wide range of European health care systems so that they might offer consensus views on the likely implications of CHP in the European situation.

The participants were welcomed on behalf of Dr Ingrid Leodolter, Minister of Health and Environmental Protection, by Dr A. Krassnigg, Director-General of Public Health, and Ministerialrat O. Laurencic who in their opening remarks stressed the importance of European countries adopting some form of broad, comprehensive health planning methodology.

Dr J.E. Asvall, Director, Programme Management, WHO Regional Office for Europe, conveyed to the Group the greetings of Dr Leo A. Kaprio, WHO Regional Director. He gave an overview of the CHP approach and its development to date, stressing the contribution it could make to health planning in the Region.

Presentations on specific CHP experience were made throughout the week by Ms M. do Rosario Giraldes (Portugal), Dr H. Duran Morales and Ms E. Presser (Spain) and Dr D.M. Pendreigh (United Kingdom). Professor J. Blanpain (Belgium) spoke on the research and educational implications of the approach and Professor E. Borgenhammer (Sweden) on aspects of health planning and management philosophy. Other participants described their relevant experience.

Dr S. Wilfling and Professor J. Indulski were elected Chairman and Vice-Chairman, and Professor P. Micovic and Dr D.M. Pendreigh joint Rapporteurs; Dr J.E. Asvall acted as Secretary.

## 2. CHP PHILOSOPHY

The present CHP methodology represents the culmination of many years of effort by WHO to contribute to the improvement of health planning throughout the world. Earlier efforts were directed to development of project systems analysis (PSA), as a first approach to a comprehensive planning methodology.

PSA introduced rationality, disciplined procedure, insistence on quantification and emphasis on the systems approach into health planning. All these helpful elements can be recognized in CHP today. CHP evolved from PSA because it was perceived that, particularly in developing countries, a broader and more comprehensive approach was necessary in the initial stages of any planning. Many countries with only basic health care systems required a means at national level whereby the main health problems could be identified, broad objectives for their resolution considered and likely major constraints anticipated. Often this had to be accomplished in situations where detailed technical and analytical skills were in short supply. Hence the case for the development of CHP in its current form.

Recently this case was significantly boosted by the Declaration of the Alma-Ata International Conference on Primary Health Care<sup>a</sup> and resolutions of the World Health Assembly<sup>b,c</sup> and Executive Board<sup>d</sup> which stressed the importance of applying some form of systematic health planning, particularly in the field of primary care, and of developing an approach such as CHP for translating policies into practical action.

The purposes of CHP are described in detail in the WHO Working Guidelines for Country Health Programming, originally issued in 1974 and currently under revision. Briefly, they are to:

- clarify the nature of existing health problems, within the total social, economic and political context, and as influenced by such factors as technology, urbanization and industrialization;
- place in clear focus the important interrelationships between the health sector and various social and economic sectors, and between different components of the health sector;
- help to elaborate alternative strategies in a form that constitutes a basis for choices and is of value to decision makers;
- promote and facilitate the implementation of health development programmes in high priority problem areas;
- identify areas requiring well-managed development programmes, both those already served by programmes, which may or may not need revision, and those where none exist or are planned;
- enhance capabilities in health planning, project formulation, management and evaluation, realizing that the techniques of cost/benefit/effectiveness analysis are still somewhat rudimentary;
- improve national health plans, especially in more effective allocation of resources;
- identify programme areas in which external assistance might be forthcoming (e.g., from bilateral agencies, IBRD, UNDP, UNICEF, WFP, WHO);
- provide the health component of UNDP country programming.

CHP is a continuing process leading to improvement in planning, programming, implementation and evaluation of health services and activities. As such it should be the main focus of national efforts in the health field, and health administrations should therefore gradually develop their structures and orient their staff to provide the necessary support.

With the European situation in mind, it seems important to consider three general aspects of CHP:

- (a) It places emphasis on interaction, collaboration and coordination of the health and socioeconomic sectors, recognizing that many health problems cannot be solved by the health services alone.
- (b) It is an ongoing process aimed at continuous improvement in planning, programming, implementation and evaluation of services. It should not be seen as a once-only or episodic type of planning.

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<sup>a</sup> See Alma-Ata 1978: Primary Health Care. Geneva, World Health Organization, 1978.

<sup>b</sup> Thirty-first World Health Assembly: resolutions and decisions, annexes. Geneva, World Health Organization, 1978 (resolution WHA31.12 - Country health programming, p. 6).

<sup>c</sup> Thirty-second World Health Assembly: resolutions and decisions, annexes. Geneva, World Health Organization, 1979 (resolution WHA32.30 - Formulating strategies for health for all by the year 2000, p. 27).

<sup>d</sup> Executive Board, sixty-first session: resolutions and decisions, annexes. Geneva, World Health Organization, 1978 (resolution EB61.R25 - Country health programming, p. 16).

(c) It is essentially flexible in nature and capable of adaptation to many different contexts and situations. It should not be mistakenly perceived as in any way doctrinaire.

### 3. REVIEW OF CHP ACTIVITIES TO DATE

Since the emergence of CHP in 1973 interest in the process has grown and around 40 countries in the six WHO regions have become involved in its use in various ways and differing degrees in their health planning.

#### 3.1 Other regions

In the African Region programme formulation was undertaken in the Congo, Nigeria, Guinea-Bissau, Cape Verde, Upper Volta, Gambia and Zambia in the period 1974-78. Activities in other countries are now at the preparatory or launching stages or are being implemented. Workshops on CHP were organized in several countries including Ghana, Angola, Mozambique and Madagascar.

In the Eastern Mediterranean Region CHP was originally started in Sudan, Pakistan and Afghanistan. The activities in Sudan are now at the programming stage; programme priorities have been developed in Pakistan; and preparation of the final version of Afghanistan's national health programme is under way. Programme formulation has been completed in the two Yemens and is at the preparatory stage in Iraq and Somalia.

In the South-East Asia Region CHP was undertaken first in Bangladesh, with emphasis on rural health services, and then in Nepal in 1974. Also, 19 programmes and 4 projects have been developed in Thailand, and 9 projects in Burma. Bangladesh, Thailand and Nepal undertook two new cycles of CHP in 1977-78 and the process has started in Sri Lanka. A CHP training workshop was held in Mongolia.

In the Western Pacific Region information collection and programming was started in Laos, Fiji and Samoa, and completed in the period 1975-77. Papua New Guinea and Solomon Islands undertook CHP in 1978 and the process is continuing.

In the Region of the Americas a process similar but not identical to CHP has evolved and been applied in many countries.

#### 3.2 European Region

Until recently countries in this Region were less involved in CHP than elsewhere, though many of the principles are already actively practised. Examples of experiences in Poland and Yugoslavia were given during the Workshop. However, no European country has a system which incorporates all facets of CHP.

There has, however, been some active pioneering work over the last five years. In Scotland, in late 1973, the project systems analysis approach, the immediate precursor of CHP, was tested as a new planning methodology in developing an overall strategy for child health services (Annex I)<sup>a</sup>.

In Algeria a comprehensive socioeconomic plan was drawn up in 1975 using CHP, though the existing information system proved a major constraint; subsequently, planning for other programme areas has also been done using this methodology.

More recently there have been major exercises in Spain and Portugal. In Spain CHP has been tested in the Province of Vizcaya with a population of 1.2 million. In Portugal the districts of Vila Real and Bragança with a combined population of 500 000 are at present the subject of a CHP exercise. The outcome of these two projects is awaited with interest. In both countries WHO-assisted CHP training workshops were organized, in 1978 and 1979 respectively.

Since 1973 the WHO Regional Office has been active in the field of health planning and in recent years this effort has come increasingly to be identified with the development and promotion of CHP. Several new exercises have been or are about to be initiated, but are not recorded here.

<sup>a</sup> For a full description of this project see: *The child health services - a systematic planning approach*. Study by a joint team from the Scottish Home and Health Department and the World Health Organization. 1974 (mimeographed document available from the WHO Regional Office for Europe).

#### 4. EUROPE - THE CASE FOR CHP

Quite rightly the principal focus of CHP in recent years has been its application to solve the massive health problems facing developing countries. In these countries there have often been difficulties in its use because of lack of developed information systems, scarcity of people with technical and analytical skills and occasionally absence of a defined administrative framework for delivery of health services - although CHP has often served to highlight such deficiencies and stimulate action to remedy them. On the other hand, there have been factors favouring the use of CHP in the developing countries. Often there has been a "green fields" situation where CHP is not really replacing a previous pattern of health planning and so there is not any particular resistance to a new approach. Also the major problems are generally obvious, sometimes with no proper services to tackle them. Thus there is usually adequate room for manoeuvre with any new planning approach. Again, administration is often centralized with no complex checks and balances to power such as exist in the different levels of government in developed, industrialized societies. All these factors which have proved helpful in developing countries must be taken into account when looking at CHP in the European context.

While there are certain factors which could complicate the introduction of CHP in European countries, they should not necessarily be seen as deterrents: indeed, many may be indications rather than contraindications for adoption of the process.

CHP has nevertheless emerged as a flexible planning methodology applicable in many different situations, and a number of arguments may be put forward to justify its use in the European Region:

(a) In complex European society there is increasing competition between various public sectors such as education, health, social services and transport, for a share of the national "cake". If health services are to receive their due share of finance, there is clearly a need for a comprehensive planning methodology which not only ensures that a sound case is put forward but also takes into account and indeed on occasion calls for the cooperation of planners in other sectors.

(b) There are significant economies which could be made in the delivery of many European health services but these will not be clearly demonstrated until a purposeful and comprehensive methodology is applied.

(c) Similar arguments could be used about the misuse of high quality health service manpower.

(d) From ministries downwards, the bureaucracies responsible for health service management and planning have become increasingly large and complex. Often they have become more interested in maintaining and running the system than in dealing with the problems which arise. A comprehensive planning methodology is needed to restore purpose and provide coherence.

(e) The pluralism of health services, especially in western Europe, though ostensibly an obstacle to CHP, should in fact be seen as a challenge for its use in order to rationalize such situations.

(f) The increasing capital intensity of the health "industry" requires that all options for service development be rigorously examined and tested before there is commitment to new hospitals, health centres, etc.

(g) The pattern of health services in many countries is determined by the cumulative effect of hundreds of small decisions taken in the different subsectors, which gives a direction to development often different from that desired. This tendency can only be countered by a comprehensive planning approach such as CHP.

(h) Another aspect of CHP which is becoming apparent is that when it is used for planning it is also a useful diagnostic tool in showing what parts of existing planning structures and processes are deficient or inappropriate and need to be remedied.

(i) Lastly using CHP to examine sets of services is in itself an educative process as it is only through such a rational, analytical and disciplined approach that one can get insight into the way that health care is really being delivered.

The case then for the countries of the European Region to consider the use of CHP is formidable. What must be identified are the issues specific to the Region which will arise when CHP is employed.

## 5. EUROPE - KEY ISSUES

A large part of Workshop discussion, whether in plenary session or small groups, was devoted to discussion of the key issues and implications of CHP in Europe, which is reported under the headings of the context in which CHP would be carried out, CHP content, and education and research.

### 5.1 Context

(1) Society in Europe is obviously of a different nature from that in many of the countries where CHP was pioneered. It is elaborate and complex, with the people or consumers often having a major role in determining or influencing the services to be provided for them. Because of the large number of technological developments many of the potential problems relate to environmental hazards. Many other health problems are the result of so-called civilized patterns of behaviour. These are often not so amenable to technical intervention and are more likely to require health education aimed at changing life styles.

(2) Another important factor in Europe is that much of the government and administration, in the health as in other fields, has been significantly decentralized from ministries to subordinate levels, unlike the situation often found in developing countries.

It is now generally accepted that there are by and large four levels at which health activities must be planned, namely:

- national, for 5 million or more population
- regional, for 1 million or more population
- subregional/area/district, for 250 000 - 300 000 population
- neighbourhood, for about 50 000 population.

Planning authority is not required at all these levels but it is important to know the levels at which planning is carried out and how they relate to each other, as this has implications for CHP. For instance there was debate in the Workshop as to whether or not objective setting and programming should be carried out broadly at national or regional level and in detail at regional or subregional level, dependent on the pattern of delegation of authority in a particular country. In the European situation the question of how to distribute the various functions of CHP to different levels is not of immediate concern.

(3) Related to this last point is the fact that in Europe practically all countries already have established health planning *structures* and *processes*. CHP is a flexible health planning *methodology*. However, any methodology, no matter how excellent in itself, will function only as well as the overall structures and processes allow. Here the value of CHP as a diagnostic tool becomes evident. It is likely to show rapidly any inadequacies of the structures and processes in which it is used. Countries should be prepared to learn from its use and correct such inadequacies.

(4) CHP has its own structure, the main components of which are the steering group and the planning group, and these must be firmly linked to the overall planning structure in the country. A possible set of links and relationships is displayed in the figure.

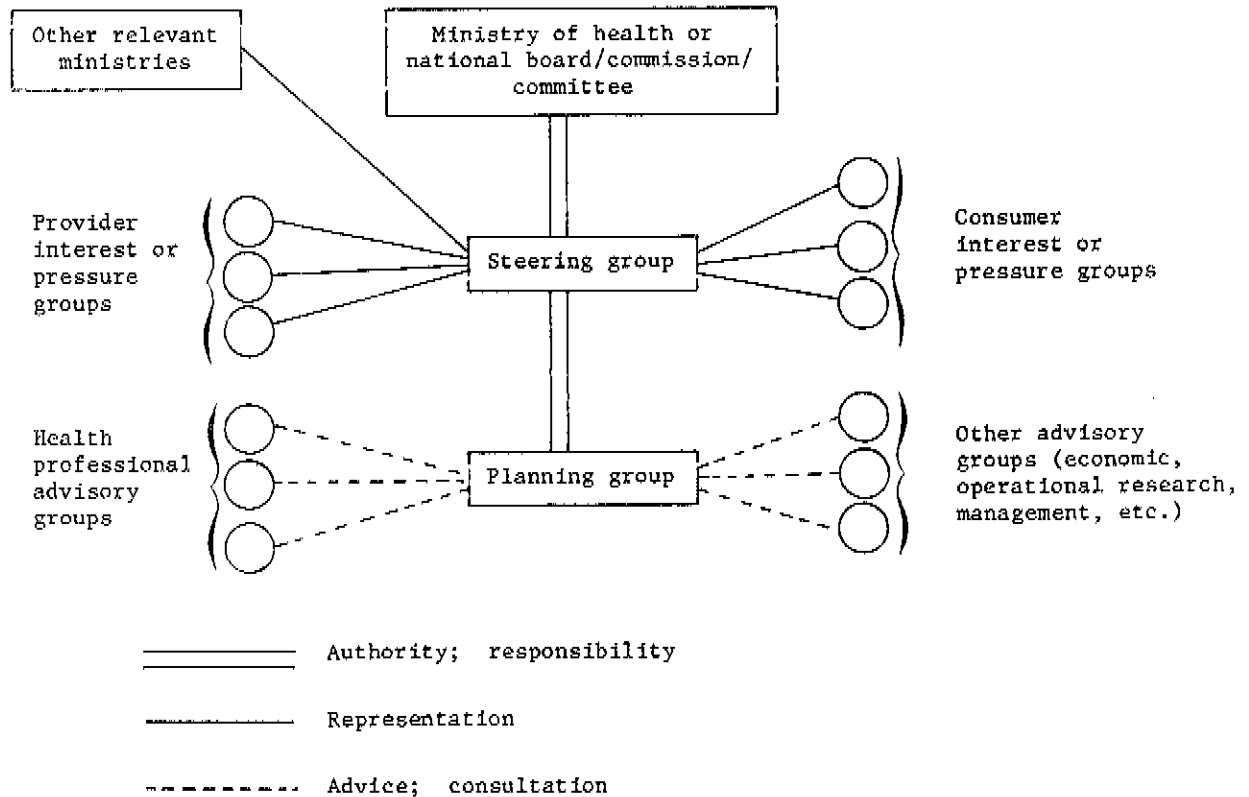
Participants saw the steering group as being crucial to CHP. It should have the following major functions:

- coordinating and motivating key bodies within and outside the health services, which are crucial to the design and implementation of health plans;
- ensuring that any plans being developed are compatible with the overall national policy and properly reflect the values and aspirations of society;
- ensuring that planning options generated are realistic in terms of resources;
- providing guidance to the planning group as and when necessary.

The steering group could be quite large and its composition should represent not only those with political and administrative responsibilities but also key groups of health providers and consumers.

The planning group should be considered in terms of its size, composition, relationships and roles. The figure displays possible relationships. Its principal role is clearly to produce

Relationship of CHP to the national planning structure



feasible health plan options for the steering group. The optimal size still requires clarification but a significant body of opinion probably favours it being small - with possibly no more than eight people. If it is any larger, the group dynamics become difficult and it works less cohesively and more slowly. Those who prefer a larger group argue that it should provide a wider range of skills and cover a wider range of interests. However, it could consult and get advice from other specialist bodies, as shown in the figure, and representation may properly be the function of the steering group.

There is a clear consensus that the core members of the planning group should first and foremost have an analytical approach and planning ability, irrespective of their individual disciplines. It would, however, be important to have some skills represented, including epidemiology, public health administration and management, health economics and operational research. Groups such as this already exist in many European central departments and ministries.

(5) A characteristic of all European countries is the large number of long-established institutions which regard themselves as having a role in the evolution and development of health services. They include academic bodies, research organizations and health professional or other interest groups. The cooperation and participation of such groups is seen as essential. For the CHP approach to be productive in Europe, it must have in-built collaboration and consultation procedures to ensure continuous dialogue with such organizations and institutions.

To some extent related to this issue is the essentially pluralist nature of many health services in western Europe which, again, must be taken into account by planners when it comes to consultation with many financing, insurance and management organizations.

(6) Lastly it should be emphasized that, as with all major planning initiatives, CHP cannot be embarked on with any hope of success unless, as a prerequisite, there is serious understanding and explicit commitment to the process at high administrative and political level.

## 5.2 CHP content

(1) The term "country health programming" could well be confusing in the European context and indeed stimulate unnecessary resistance where well established health planning organizations already exist. A great deal of planning in Europe is not necessarily done at national or country level. Also the term "programming" has specific connotations which could lead to a misunderstanding that CHP is not the broad approach it purports to be. Suggestions made for more useful designations are "comprehensive health planning" or "integrated health planning".

(2) Quite rightly, until now, the main drive of CHP has been to upgrade as well and as quickly as possible the technical, analytical and rational aspects of planning. However, it has to be remembered, particularly in Europe, that planning is a political and social as well as a technical process, and these aspects therefore require more attention when applying CHP in the European situation.

(3) In presenting any form of CHP guidelines for Europe there should be strong emphasis on the fact that they are indicative and not in any way prescriptive. Countries should feel free to modify them in situations where they are inappropriate or where they may be improved upon.

(4) The present CHP approach tends to emphasize the logical progression of steps in a linear fashion. However, to anyone familiar with planning situations it is clear that a great deal of rethinking, doubling back between stages and recycling is generally necessary. This point should be emphasized.

(5) In Europe most countries are already collecting and organizing their health planning data under subheadings of demography, socioeconomic, environment, health status, health technology, health service resources and utilization. More specific consideration should be given to the types of data under these subheadings which would be useful in Europe. Also there was general agreement in the Workshop that it is especially important in the European situation to have "soft" qualitative as well as "hard" quantitative data. A problem which could be virtually peculiar to Europe, however, is that this requirement might involve the collection of irrelevant and confusing data.

(6) A crucial stage in CHP is that of problem definition. It is necessary to identify the major problems for planning, as it is impossible to devote time to all those which exist. It is therefore important to know what criteria should be used in problem selection. The consensus view of the Workshop was that the different categories of criteria which might be used in the European Region were: epidemiological/health status; sociopolitical; administrative/economic. Further work has to be done to formulate these criteria in more detail and also to determine what form of weighting should be attached to each. An important point emerging from this discussion was that in the identification of the problems which should have scarce planning time allocated to them there is an implicit conferral of priority status. This effect requires reconciliation with steps taken in the later stages of CHP.

(7) Constraint analysis requires further development, and may be considered under the subheadings of resources; cultural/attitudinal; health professional/attitudinal; organizational.

(8) As mentioned, consideration is required in Europe as to how specific the planning at different levels of authority should be and, consequently, how broad and detailed programming should be interrelated in the CHP methodology.

(9) As the CHP guidelines indicate that evaluation mechanisms should be built into all plans, the participants considered it important that responsibility for ongoing evaluation be clearly allocated beforehand to a specified group or set of individuals.

## 5.3 Education and research

(1) Simply providing CHP training workshops as at present, is not sufficient for Europe. CHP must be embodied in wider management and planning training for health service administrators and planners in order to give it proper perspective.

(2) Existing training schemes tend to concentrate on providing knowledge of the health system and how it should be operated. However, what is required is better training and education on how to identify and tackle problems and how to initiate change and innovation.

(3) There are in fact already potential resources in Europe for promoting such training for managers and planners but they are not organized or deployed in an optimal fashion at present.

(4) The group agreed that such training should be based on university departments but felt that there should be collaborative two-way relationships between these departments and the health service authorities and that much greater coordination is required than presently exists in order to determine the content and form of the courses.

(5) There appears to be a clear case for organizing courses not only for entrants into the health planning and management field but also short courses of in-service training to keep managers informed about new developments and trends.

(6) There should be a clearer understanding of the role of research and education which, essentially, should:

- complement *experiential* expertise;
- develop and transfer *scientific* expertise.

The hope is that this will improve the understanding of problems and enhance the capability for changing the system to deal with them.

(7) It was felt that research would be of special value for CHP in developing:

- simple methods to assess health status;
- valid, reliable and stable resource indicators;
- simple, timely health information systems;
- methods for determining the efficacy, costs and benefits of alternatives;
- useful, practical, timely performance measurement procedures;
- promotional strategies to give clinicians a population-oriented perspective;
- techniques for conflict management;
- techniques for consumer participation;
- techniques for interorganizational cooperation.

## 6. EUROPE - THE WAY AHEAD

The following are the main recommendations of the Workshop of particular relevance to future action by the WHO Regional Office:

(1) CHP is a valuable approach to health planning for countries in the European Region and its use should be actively promoted. Its application should, however, be carefully adapted to the existing national planning structures and processes which reflect the differing administrative/political systems, socioeconomic conditions and individual cultures in the countries.

(2) The existing CHP guidelines are not wholly appropriate to the present European situation. The Regional Office should therefore take the initiative in designing a version specifically to meet the requirements of the more complex, industrialized European countries. Such guidelines should take full account of the existing experience and expertise in Europe and reflect the developments in health planning there which have already proved helpful and appropriate.

(3) Account should be taken in the guidelines of the obstacles to speedy implementation of plans which result from the interaction of the many bodies and organizations influential in health care in Europe. Stimulus should be given to the development of effective consultation procedures and promotional strategies relevant to the CHP methodology.

(4) Detailed consideration should be given to the relationships between different levels of planning when CHP is applied. It may be that some CHP functions such as broad analysis and programming are more appropriate to national or regional levels, while others such as detailed programming are more suited to area or district levels.

(5) Aspects for consideration in any CHP guidelines for the European Region include providing more specific guidance on problem identification and constraint analysis and placing greater emphasis

on social and political as well as technical processes; it should be made clear that CHP is not simply a linear approach and that much recycling is required between the different steps; finally, such guidelines should always be regarded as indicative rather than prescriptive.

(6) It is recommended that two versions of the modified guidelines be contemplated. One might be for the information of politicians, health care administrators, provider groups, etc., giving in broad terms and non-technical language the general philosophy and principles of CHP; while the second, more detailed, version containing technical guidance might be for the use of health planners.

(7) Some form of "clearing-house" arrangements should be made for exchange of national experience in health planning in order to support further CHP development. These might take the form of identifying appropriate collaborating centres, and defining their specific activities.

(8) Encouragement should be given to existing health planning and management education centres in the Region not only to develop further the CHP training workshops but to integrate them into broader-based training aimed at giving greater insight into the problems of health care delivery and means of effecting change and innovation.

(9) Research in some of the areas identified in this report should be promoted.

(10) Further consideration should be given to the many issues relative to the introduction of CHP in the Region, which are identified in this report.

COUNTRY HEALTH PROGRAMMING EXPERIENCE IN SCOTLAND:  
CHILD HEALTH SERVICES

by  
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BACKGROUND

This project used the project systems analysis (PSA) health planning methodology developed by WHO, which was the immediate precursor of country health programming (CHP). The principal objectives were:

- (a) to test methodology;
- (b) to produce an overall planning strategy for the child health services in Scotland.

The intention was to have a detailed and realistic plan within the general policy framework laid down by a previous working party.

The project was carried through in late 1973/early 1974 and was based on the total child population of Scotland. The team involved was a joint one from the Scottish Home and Health Department and the World Health Organization. The composition was:

<u>Department:</u>	2 child health doctors	<u>WHO:</u>	2 doctors
	3 information specialists		2 systems analysts
	1 medical administrator		
	1 lay administrator		
	1 nurse		

The formulation took place over a six weeks' period, but this had been preceded by preliminary data collection and analysis over a three months' period by one or two members of the team.

It should be made clear that the plans and strategies which were evolved in this exercise have not been implemented as a package; but there is little doubt that in a less direct way they have influenced thinking and planning in the child health services.

DESCRIPTION OF THE METHOD

Introduction

The PSA approach to health service planning has two major components: analysis of the existing situation, and in the light of this analysis the design of a new programme. Figure 1 illustrates the complete process which comprises eight main phases in the central pathway of the network starting with the stage of boundary setting and leading on through analysis to design. The data that are required, the sequence of activities and the material which is produced are shown in relation to their links with this central pathway.

There now follows an outline description of each of these phases as experienced by the project team when undertaking the planning exercise on the Scottish child health services.

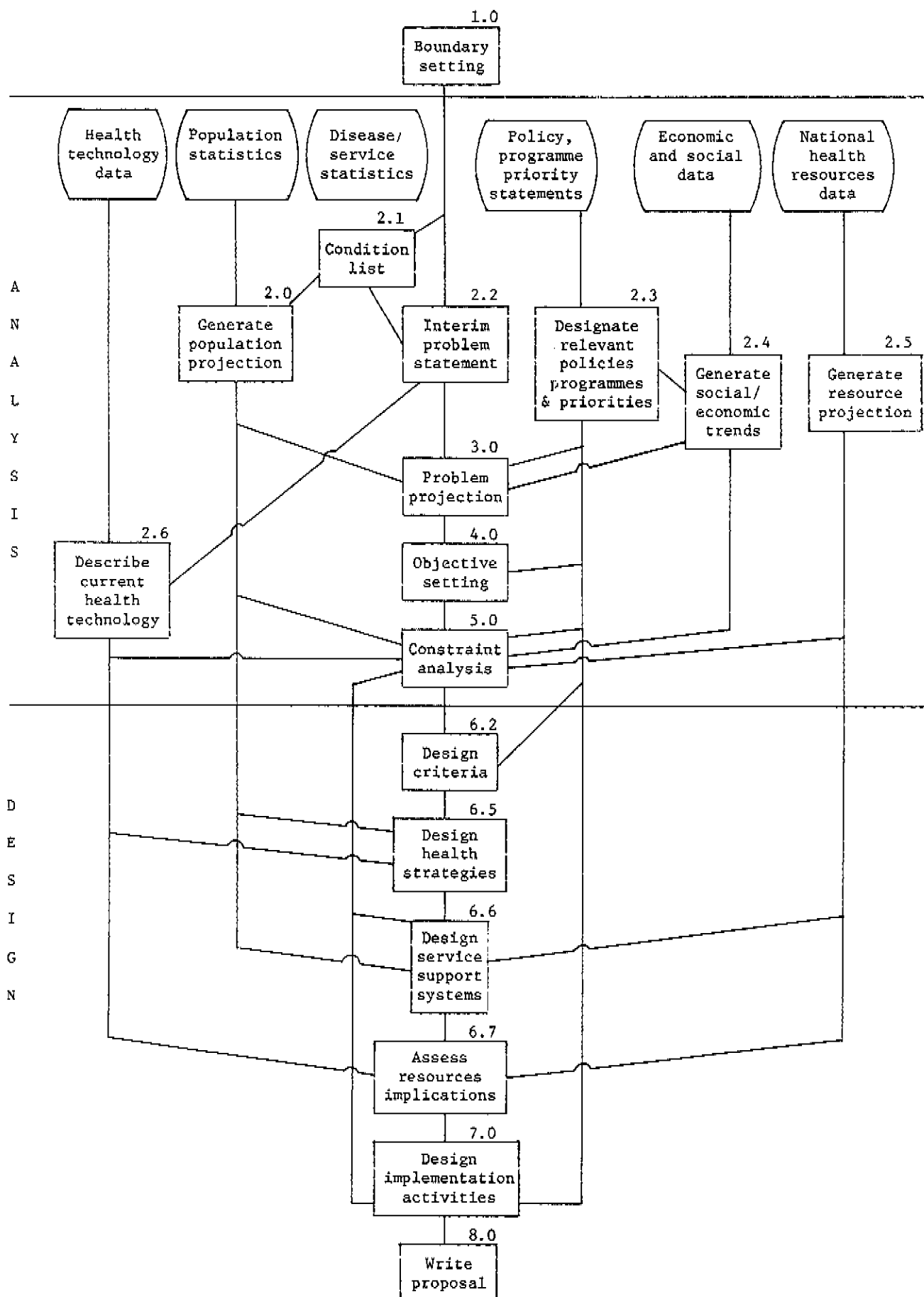
Boundary setting

This is an important preliminary to the analysis and design phases as it determines the limits of the service under consideration and the framework within which planning must take place. These limits are stated in the terms of reference which should cover the following points:

- (a) The functional area of the study defined in terms of:
  - (i) the health service sector (e.g., child health)
  - (ii) priority of problems
  - (iii) health service facilities
  - (iv) supporting services
  - (v) organizational problems;

Fig. 1

PROJECT FORMULATION ACTIVITIES



- (b) overriding national or health service policies which may indicate priorities or constraints in achieving change;
- (c) existing or planned programmes in other public sectors which are relevant in terms of their likely effects on health problems;
- (d) the time required by the planning activity and the time horizon for the planning;
- (e) the size and composition of the working group and the time available for the study.

Analysis of existing service

The study proceeds with a comprehensive analysis of the existing situation and documents in some detail, the size and nature of the current and future problems, present clinical practices and the resources consumed.

Population projection. This shows the expected size of the population being considered at certain specified dates and divided into appropriate age groups. The child health study divided children into those aged less than 1 year, those aged 1-4 years and those aged 5-14 years. The specified dates for planning purposes were 1981 and 1991.

Condition list. The list is prepared early in the study by selecting diseases and conditions which will form the focus of activity for the remainder of the exercise (see Table 1). It is considered advisable to limit the number of disorders selected to a maximum of 25 because of the complexity of the method. It is also essential that the list commands general acceptance as a reasonable focus for inducing change.

Table 1 WHO PSA CHILD HEALTH PROBLEMS

<u>ICD code</u>	<u>Condition list</u>
000-009	1. Intestinal infections
033	2. Whooping cough
055	3. Measles
204-207	4. Leukaemia
277	5. Obesity
290-309	6. Mental illness
306.0, part 306.9	7. Speech disorders
306.6, 786.2	8. Enuresis
310-315	9. Mental retardation
343	10. Cerebral palsy
345	11. Epilepsy
370	12. Refractive error
380-383	13. Acute and chronic ear infections
388-389	14. Hearing impairment
466-471)	
480-486)	15. Lower respiratory infections
490-492)	
493	16. Asthma
500	17. Hypertrophy of tonsils
521.0, 523	18. Dental caries
741	19. Spina bifida with/without hydrocephalus
777	20. Very low birth weight (< 2000 g)
789.1	21. Bacteriuria (in girls)
N801, 803-804)	
N850-854 )	22. Head injuries
N940-949	23. Burns
N960-989	24. Poisoning

Disorders should be selected because they are each considered to constitute a significant health problem. The criteria for selection will normally be outlined in the terms of reference. In the child health study they were as follows:

- (a) leading causes of death;
- (b) disorders consuming a high proportion of health service resources;

- (c) disorders increasing in incidence;
- (d) disorders not adequately dealt with despite the existence of an effective technology;
- (e) disorders causing public distress and concern.

The list was prepared from scrutiny of the available statistics and was revised in the light of comments from a panel of clinical experts. Of necessity the list is a compromise; some of the specific disorders which are included represent a wider group because the treatment of each of the conditions within such groups is so variable. For instance, the study chooses spina bifida to represent the congenital abnormalities and leukaemia the malignant neoplasms.

It is thereafter important to identify the aspects of each disorder which are a matter of major concern. These dimensions of concern are likely to be the occurrence (i.e., an attack of illness or the existence of a given condition in a child) and the disability, death or impairment due to the disorder. The dimensions may vary for different age groups. There are no really objective grounds for selection of the major area of concern and in the event this must be by a consensus of opinion in the team.

**Problem statement.** This is prepared from the available data on the dimensions of concern which have been identified for each disorder. Data should ideally be related to the entire population under consideration as is the case for mortality and hospital discharge data on child health in Scotland. It will usually be necessary, however, to supplement such information by means of special surveys and *ad hoc* studies. (The problem statement for lower respiratory tract infections can be seen in Table 2.)

Table 2

PROBLEM STATEMENT

Dimension	1	1-4	5-14	15-19
A. Occurrences		X	X	
B. Disability				
C. Impairment		X	X	
D. Deaths	X			

Condition area: Lower respiratory tract infections

A. Occurrences

Hospital discharges o/ooo

Bed/days o/ooo

Mean stay

Numbers consulting GP o/ooo

GP consultations o/ooo

B. Disability

C. Impairment

D. Deaths o/ooo

	1	1-4	5-14	15-19
	160.4	30.9	6.8	
	trend - modified exponential curve			
	2205	355	74	
	trend - 1971 mean stay applied to discharges			
	13.7	11.5	11.0	
	1537		672	
	2899		1216	
	trend as for hospital discharges			
	4.4% of cases had continuous respiratory infection for 5 years			
	21.8			
	trend - see Fig. 3.			

Policies and programmes. National and health service policies and programmes which are relevant to the planning process may either act as constraints to be overcome or reinforce proposed changes. Ideally, policies should appear as written statements in policy documents but it was acknowledged that a great deal of Scottish health service policy is unwritten. This emerged in the course of discussions rather than being readily identifiable at an early stage. The main purpose of preparing the statement is to ensure that future proposals are consistent with existing policies, for instance in the understanding that "health boards are largely responsible for the determining of their own priorities for the expenditure of resources".

Social and economic trends. Significant future changes in the social or economic sectors may have important repercussions in a positive or negative way on health. In Scotland it is possible to identify many changes but it was felt that most of these (e.g., improved housing, rising income, family planning) are already reflected in statistical trends for certain disorders, such as intestinal infections and low birth weight. It is, of course, difficult to forecast whether there will be any change in the influence which such factors have on health and disease.

Resource projection. The existing health service resources in terms of numbers and types of staff, buildings and other supplies and equipment must be quantified. This statement should also give an estimate of the proportion of time devoted by each type of staff to the area of the service being studied. Staffing figures should be projected into the future, basing the number on known plans or on past trends. The statement serves to identify staff categories which may need to be augmented to implement the proposed changes and the categories where the numbers could be allowed to fall.

Health technology. The health technology statements describe the way in which an average case of each clinical disorder is managed at present. They are prepared in consultation with the appropriate clinical staff and should reflect the most commonly applied current technology, a norm which it is often difficult to identify. The health technologies indicate the current use of resources and provide a structure for revision of detailed health service practice in respect of each disorder. The technology statements are structured as indicated in Fig. 2 and Tables 3 and 4, and show:

- (a) health states, with a description of the different clinical stages of each disorder which may require different kinds of clinical management;
- (b) a series of health tasks relevant to each health state;
- (c) the staff categories performing each of the health tasks; the estimated time taken for each task and the proportion of children to whom it is applied;
- (d) the resources used in treatment as specified, including hospital bed/days, drugs and any special apparatus required.

Fig. 2

HEALTH STATES

Disease/condition: Lower respiratory tract infections

Definition: Respiratory illness with systemic illness or cough as major features.

Possible health states

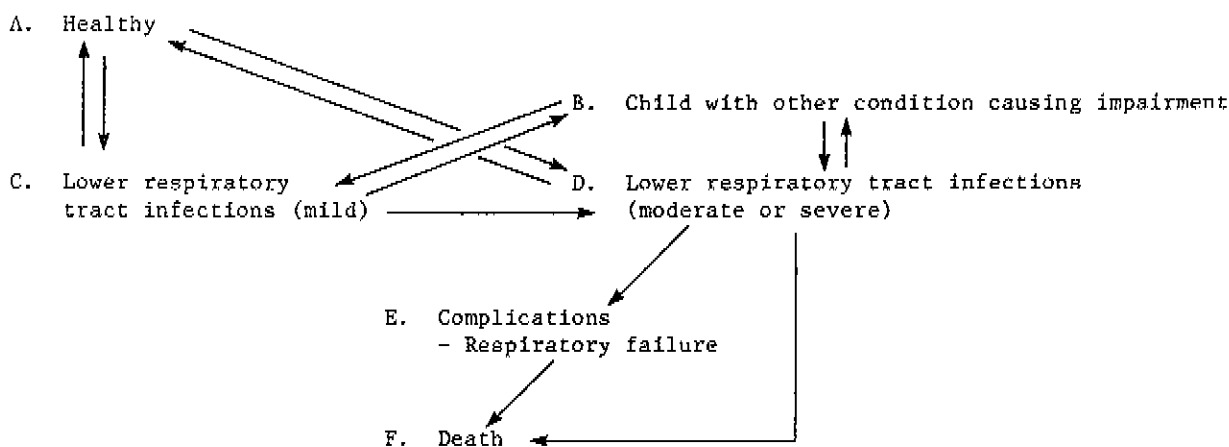




Table 4 DISTRIBUTION OF TASKS PER CATEGORY OF STAFF AND HEALTH FACILITY

Time in minutes per annum per patient

Category of staff	Disease/condition: Lower respiratory tract infections			
	Community based	General hospital	Specialist hospital	Numbers o/ooo children 0-14
1. General practitioner	C1 + C2/7x2 D1/7 + B1/7			1000 23
2. Child health doctor				
3. Medical paediatrician		D3/hospAdm + 13 days D4/15:D5/15:D6/20		22
		B3/hospAdm + 13 days B4/60:B5/180:B6/20 B7/20		1
4. Radiologist		D4/4:D6/4		22
		B4/4 x 4		1
5. Pathologist		B2/180		<1
6. Virologist		D4/15 B4/15		15
7. Qualified nurse		D3/hospAdm + 13 days		22
		B3/hospAdm + 13 days		1
		B6 + D5/900		23
		D6 + B7/4		23
8. Unqualified nurse		D3/hospAdm + 13 days		22
		B3/hospAdm + 13 days		1
		B6 + D5/1500 + (150x13)		23
		D6 + B7/2		23

Obviously, the accuracy and reliability of such health technology data varies. However, the PSA method remains effective because it uses the same data for estimating the resources required in the replanned, as well as the present, service. The resulting proposals thus reflect proportional increases or decreases in resource requirements and although based on them are relatively independent of the original data. Only major errors will have a critical effect on resource requirements and such errors are likely to become apparent and lead to questioning of the original data.

Problem projection. In this part of the study the problem statements, trends in the epidemiology of disease and population projections are considered in estimating the likely magnitude of the problems of each disorder in the specified future years. Definite policies or trends in social or economic conditions, such as greatly increased nursery school provision or improvements in the standard of housing, are also taken into account because they could have an influence on some disorders. In countries with a rapidly changing population and in situations where health problems are changing, these projections are likely to be useful in confronting health planners with the expected increase in the demand for resources. With regard to child health no massive changes are expected in the school age population in Scotland but some disorders are increasing or decreasing rapidly, and for some of these it has been necessary to make an informed estimate of the level at which a trend may be expected to flatten out. The problem projection for lower respiratory tract infections is illustrated in Table 5 and Fig. 3.

Table 5  
PROBLEM PROJECTION

Condition: Lower respiratory tract infections

Age groups <sup>a</sup>	1971			1981			1991		
	1	1-4	5-14	1	1-4	5-14	1	1-4	5-14
Population (numbers)	86 000	358 315	910 524	95 000	369 100	845 300	97 000	384 500	923 800
Incidence-discharges <sup>b</sup> rate (o/ooo) objective	1 376 160.4	1 105 30.9	616 6.8	1 439 152 Less 12 <sup>b</sup>	993 12.7	554	1 461 151	1 064 12.7	594
Incidence bed/days <sup>c</sup> rate (o/ooo) objective	18 921 2 205	12 689 355	6 713 74	15 786 2 083	11 400 309	6 094 72	20 089 2 071	12 215 318	6 534 71
Incidence nos consulting GP <sup>d</sup> rate (o/ooo) objective	68 291 1 537		61 187 672	67 387 1 452		53 677 635	69 480 1 443		58 292 631
Incidence GP consultations <sup>d</sup> rate (o/ooo) objective	128 807 2 899		110 720 1 216	127 071 2 738		97 040 1 148	131 064 2 722		105 498 1 142
Deaths rate o/ooo objective	180 21.8			2 410 o/ooo		1 010	2 395		1 005
				133			87		
				14			9		
				10					

<sup>a</sup> For 1981 and 1991 the 1-4 and 5-14 age groups are taken as a constant proportion of the 1-14 age group. This proportion is as in 1971.

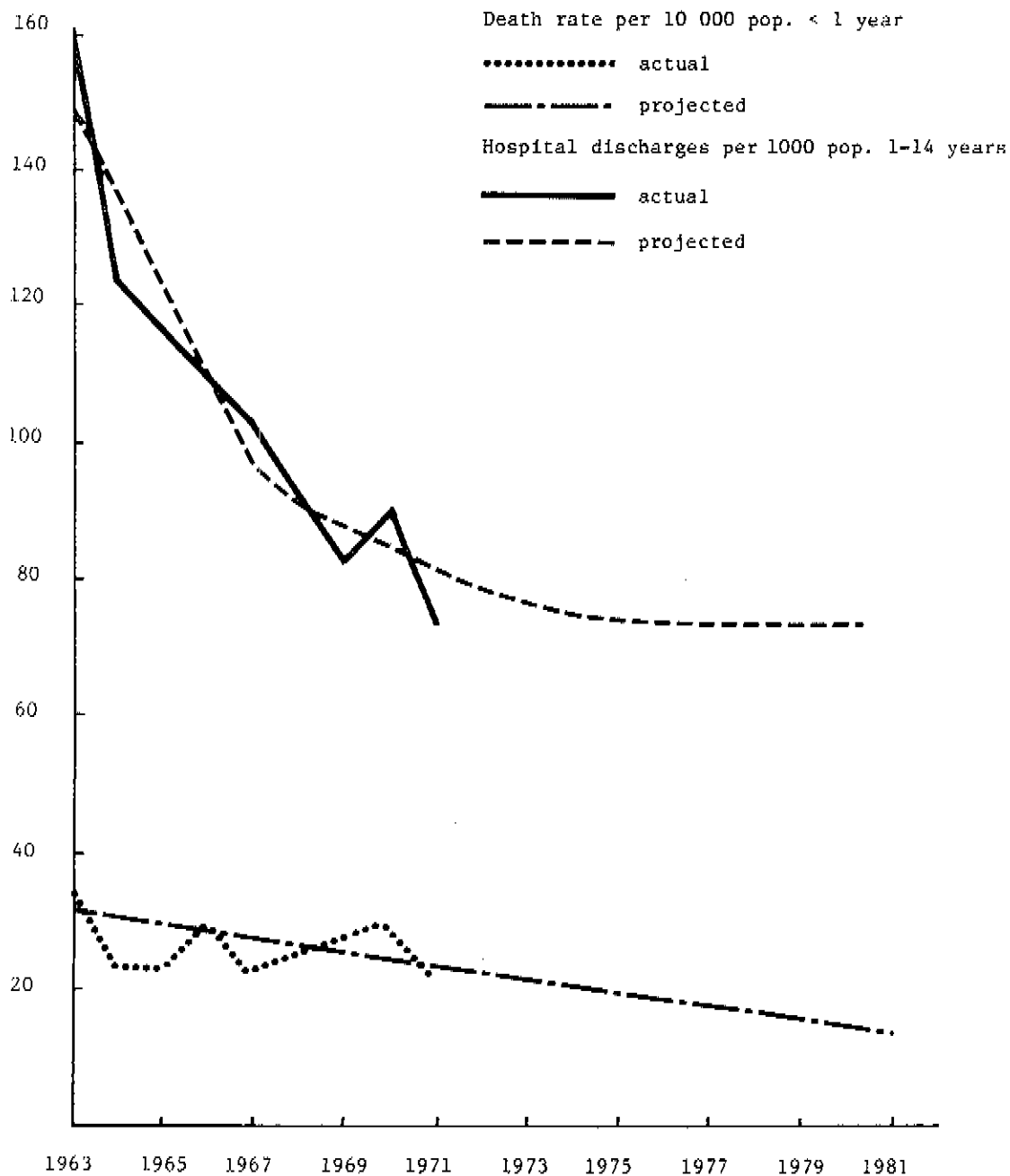
<sup>b</sup> Trend for age group 1 is assumed to be the same as for age group 1-14.

<sup>c</sup> Trend assuming that mean stay remains at 1971 level.

<sup>d</sup> Trend as for hospital discharges; 1971 figures include influenza.

Fig. 3

PROBLEM PROJECTION  
Lower respiratory tract infections



Objective setting. The team, together with appropriate advisers, now reviews the problem projection data and sets specific objectives for each disorder in terms of its particular dimensions of concern. The objectives or goals are to improve health standards and are normally stated in terms of a reduction of the problem, i.e., a reduction in occurrence, disability or death. In some instances, however, where there is little hope of influencing the incidence or prevalence of a disorder, the aim might be to extend treatment to more people. While such objectives are the best guess of what it should be possible to achieve, they should also offer a challenge and not merely reflect trends already leading to improvement. Otherwise there would be no incentive to positive planning. Table 6 shows the impact objectives and operational output targets for lower respiratory tract infections.

Table 6 DISEASE/CONDITION: LOWER RESPIRATORY TRACT INFECTIONS

Impact objective

1. By 1981 reduce occurrence of such infections due to respiratory syncytial virus from 12% of cases to 0 in the age group 0-14 (await appropriate vaccine).
2. By 1981 eliminate avoidable deaths by reduction of deaths to 10 o/ooo children aged 1 year (this represents a reduction in the case fatality rate of 50% and assumes that unavoidable deaths will continue to occur among children with congenital defects and other handicaps).

Operational output target

1. Continue research on prevention of RSV infection and determine effective vaccination policy.
1. Achieve 100% coverage of appropriate age group when RSV vaccine becomes available.
2. Increase parental awareness of potential severity.
2. Ensure effective treatment for all.

Although the detailed health technology data are not directly involved in this process the objectives should be realistic in terms of their practical feasibility. Thus it would be unrealistic to suggest a complete abolition of deaths from pneumonia, but it may be possible to reduce death below the natural trend by implementing a policy of inoculation against a specific virus.

In addition to setting quantified objectives for each of the disorders, it is also important to propose operational output targets or outlines of how the service may be reorientated to help to reach specified objectives. These and the next stages of constraint analysis will in turn form the basis of the proposals for the future.

Constraint analysis. With the help of appropriate advisers, constraints which are preventing the immediate attainment of the objectives are specified for each disorder. These constraints may result from a wide variety of factors, such as staff and patient attitudes, failures of recommended procedures or people to perform satisfactorily, maldistribution or lack of service facilities or staff, inadequacies of organization or of resources. The constraints are reviewed and reported under a number of systematic headings:

- (a) lack of awareness on the part of an individual or his family that a clinical disorder is present or that it merits treatment;
- (b) lack of motivation to seek health care;
- (c) problems of making contact with the services (because of difficulties of either communication or access);
- (d) problems in making an accurate diagnosis;
- (e) failures in treatments;
- (f) factors inhibiting prevention of the condition.

Constraint factors for lower respiratory tract infections are shown in Table 7. It will be clear that many of the constraints could apply to a number of other disorders. It is then necessary to identify the most important constraints for each disorder in turn.

Table 7

CONSTRAINTS

Disease/condition: lower respiratory tract infections

Population service system states	Potential constraint category	Possible changes
Awareness	<ul style="list-style-type: none"> <li>2. Rapid onset of illness</li> <li>2. Poor parental care</li> <li>2. Poor social circumstances</li> </ul>	
Motivation	<ul style="list-style-type: none"> <li>2. Parental lack of awareness of severity</li> <li>2. Parental apathy</li> <li>2. Reticence to use health service (especially at night)</li> <li>2. Mother awaiting advice of husband</li> </ul>	
Contact	<ul style="list-style-type: none"> <li>2. Difficulty of communicating with appropriate service (especially at night)</li> <li>2. Doctors unwilling to make night calls</li> </ul>	
Diagnosis	<ul style="list-style-type: none"> <li>2. Lack of identification of "at risk" groups<sup>a</sup></li> <li>2. Doctors unaware of potential severity</li> </ul>	
Treatment	<ul style="list-style-type: none"> <li>1. Doctors not aware of potential severity and therefore not instituting adequate observation and treatment</li> <li>2. Special investigation and treatment facilities not universally available</li> </ul>	
Prevention	<ul style="list-style-type: none"> <li>1. RSV vaccine not yet available</li> </ul>	

<sup>a</sup> Low social class  
Unemployed  
Poor housing  
Young mothers  
Family problems

Ranking of constraints. When the most important constraints in achieving the objective for each disorder have been determined they are assimilated into a combined set for the whole service under review. These combined constraints are summarized in a table where possible problem areas in the service are set against the systematic heading under which the individual constraints had been noted. Possible health service problem areas range from inadequate technology and staff through lack of administrative procedures and organization failures to cultural factors in the population served.

The overall appearance of the final table of summarized constraints shows a certain amount of clustering, giving an indication of the major areas of difficulty for the child health service in the context of the specified objectives, and these can be considered as service constraints rather than the original constraints which were related to individual clinical disorders. In the child health service it was apparent that there were two major areas of service constraint. There appeared to be a group of the population which was not able to make appropriate use of the existing services and there was a clear need for certain improved procedures and facilities.

### Design of a new programme

The stage of the study concerned with designing proposed changes in the service is shown in Fig. 1 by items 6.2 to 7.0.

Design criteria. Initially, a framework of the essential components of the new programme must be established. These are design criteria derived from three main sources:

- (a) the summary of constraints which demonstrated the main areas where the service functioned least effectively;
- (b) the policies and programmes referred to earlier and including the unwritten basic rules of the National Health Service;
- (c) the initial boundary setting which indicates the framework within which the new programme must be designed.

It was found that the criteria for the child health programme derived from these sources contained a certain amount of overlap and some inconsistencies, so an editing process was necessary.

Detailed changes in individual health tasks. Each disorder is now considered in relation to these criteria and changes are proposed for the detailed health tasks in the original health technology statements. Once this procedure has been accomplished for all the disorders under consideration an inventory of all the proposed changes is made and quantified in terms of the staff time and resources required.

In the design of the child health programme a table was prepared to group the individual disorders in relation to the applicability of the design criteria. Each of the disorders was then considered and changes were proposed in collaboration with many advisers. Additional health tasks were included, some were changed and some current ones were omitted. Changes were also proposed in the estimates of staff required and children who would receive treatment in the context of these tasks.

Strategy design. Once detailed changes have been made for each disorder and a total inventory of changes has been prepared it is possible to arrange the health tasks (old and new) of the revised health technology statements into certain logical groups of procedures. These are then formalized as strategies for the new programme and must be described in sufficient detail for those who will be expected to implement them. These proposals should also include information about the manpower involved and the way in which the strategies could be coordinated within the programme, and a schedule for their initial implementation.

The relationship between health tasks, strategies and the complete programme can be summarized as follows:

Sum of individual tasks - a strategy  
Sum of strategies - the programme.

The logical groupings which formed the proposed strategies for the child health programme consisted of prevention, screening, assessment and treatment tasks. The treatment tasks placed particular emphasis on community aspects of treatment.

Service support systems. Implementation of the final programme frequently requires additional service changes to ensure that the proposed strategies are effective. The inventory of changes should be reviewed and any supporting tasks allocated to the appropriate support system. The proposed child health programme was found to require a significant amount of support from the information services, the health education system and the health service administration, and involved training changes for health service personnel.

Resource implications of proposed changes. The individual changes proposed must be assessed for their feasibility and for their expected cost. The PSA method calculates future manpower needs against present use. Present use is quantified using the time estimates for the health tasks performed for each disorder. The manpower required for the recommended changes is calculated using the same base, thus comparing like with like. Ideally this process should be carried out using a simple computer programme to allow a number of alternative proposals to be considered.

In the light of the resource implications it may be necessary to modify the detailed proposals to meet the requirements of certain remaining design criteria, such as a need to keep changes within certain budgetary limitations. It may also be necessary to change the personnel required for certain tasks, depending on the likely availability of certain categories of staff.

In preparing the child health programme, an additional technique for calculating the resource implications was devised and used. The time required for all the proposed health tasks in each of the strategies was calculated and added to the known time required for other child health service work not covered by the study. This made it possible to compare the total manpower needed in the service with that known or expected to be available (as measured in whole time equivalents) and ensured that the total implications for manpower were made explicit.

Because of the resource implications it was found necessary to introduce a certain amount of selectivity into some of the screening and preventive strategies, so that the child health programme could come within budgetary and other resource limitations. It was also thought possible to delegate much of the routine dental work to dental ancillaries who could be trained more quickly than additional dentists.

Design of implementation activities. A procedure for ensuring that the proposed service changes actually come into operation is part of the final phase of the study. A timetable for obtaining acceptance of an agreement to the proposals constitutes the first of the implementation activities. These are followed by promotion of the programme to those concerned so that the proposed detailed changes may be understood. The resource requirements and the support systems involved must also be agreed because of their wider implication for other areas of the health services.

It is important to ensure that all necessary tasks are completed by preparing a detailed timetable for each of the support systems. This may include details of the creation of a new staff category, provision of necessary buildings or the arrangements to be made for the definition of certain procedures and criteria. Such a timetable should include a list of the steps to be undertaken, an estimate of the time required to carry out each step, and an indication of the manpower required. The dates given on the timetable are only estimates. The main value of the timetable is to give the order in which it is most logical to approach the various implementation activities. Individual time schedules should be reviewed so that any appropriate dovetailing can take place and the expected timing can be adjusted to accommodate the completion of critical events in other schedules.

In Scotland it is expected that agreement on any acceptance of this kind of programme will be given through the Planning Council and the national consultative committees. However, it will be important to use various channels other than just the formal ones to explain the proposed programme to different groups of staff concerned.

#### Preparation of the report

The final stage of the PSA exercise is to prepare a report. This is used as a basis for gaining acceptance of the proposals as well as to present the detailed recommendations. It should be prepared as soon as possible after completion of the study so that the impetus of the exercise is not lost.

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<sup>1</sup> Participation expenses not paid by WHO.

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