

training of doctors

-BLUEPRINT 2001-

*adjusted objectives of
undergraduate medical education
in The Netherlands*

Blueprint 2001: training of doctors in The Netherlands

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PREFACE TO BLUEPRINT 1994

For the last five years, Dutch universities have been increasingly aware of their teaching responsibilities. The medical schools are no exception. Discussions on content and structure of medical education have gained momentum with the publication of two leading national documents, on clerkships and on a preregistration period, respectively. Moreover, this increasing interest can be seen as a result of various developments, such as the expected introduction of a new law concerning the practice of all health professionals, the report of a National Committee on 'Choices in Care', and not least because of the rapid developments in medical science itself.

All those involved in medical education felt an increasingly strong need for a description of what is to be expected of a doctor at the end of undergraduate medical education. According to a governmental recommendation of such a sort, the Disciplinary Board of Medical Sciences of the Association of Universities in the Netherlands (in which the deans of all medical schools are represented) decided to develop a Blueprint in which the common objectives of undergraduate medical education in the Netherlands had to be formulated.

In the assignment, it was established that the Blueprint was to formulate objectives for undergraduate Dutch medical education, to be applied to all Dutch medical students. The assignment also contained a request for proposals for the format of the final examinations in medicine and for the educational training of staff members involved in medical education, both of which are essential if the educational objectives are to be achieved.

A National Coordination Committee was appointed to undertake this. This committee was composed of representatives from all Dutch medical schools and from the National Organization of Clerks. The Royal Dutch Medical Association participated with four consultants and from the Ministry of Health an observer was delegated to the coordination committee.

The project was financed by the joint medical schools and started in September 1991. The actual design of the Blueprint was assigned to the Working Group on Practical Clinical Education in the Faculty of Medical Sciences at Nijmegen University. This group had previously produced the above-mentioned report on the educational aspects of clerkships.

From the beginning, the final objectives of basic medical education were intended to be more than just a list of professional requirements. It was explicitly stated that acquiring the process of medical thinking and performing as a doctor should have a central place and that the student should learn to consider the patient as a complete and unique person. For this reason, the educational objectives are - where possible - not discipline-specific. If discipline-specific objectives are used, they serve mainly to support the general aims of the curriculum.

The Coordination Committee is aware of the fact that these objectives are just those at one moment in time. They will have to be adjusted periodically according to developments in medical science and in response to views of society on what is desirable in health care.

Many people were involved in formulating the Blueprint. Primarily, from each school those with a teaching commitment in the 11 core disciplines (defined as having a compulsory clerkship in the curricula of at least 6 of the 8 medical schools). However, over 250 others somehow involved in medical education - mostly doctors - also participated as consultants. This procedure of broad consultation does not imply that the final objectives came about 'by a majority of votes'. On the contrary, the Coordination Committee considered carefully all opinions and took the ultimate decisions.

After a little more than two years of hard work the Blueprint had been completed in December 1993. As Chairman of the Coordination Committee, I noticed again and again to what extent everyone was prepared to think positively about this process of improvement and innovation of basic medical education. As a result of all this support some optimism may be appropriate that this Blueprint will be speedily accepted and assimilated by the medical schools, and that this will lead to further improvements in medical education.

A word of thanks is due to all members of the Project Group. They went about their task with much patience, care and consideration. With their enthusiasm and powers of persuasion, they found many who were prepared to contribute. Special thanks are due to those with teaching commitments, representatives of medical specialties and the other participants in the consultation process.

In particular, I want to thank those who so generously assisted in preparing the English translation. Hellen de Roon and Patrick Dielissen who made the first draft, Professor T.J. David and Mrs.J.E. David from Manchester who did the revision and, by doing so, transformed the text into English.

In the beginning of 1994 the Blueprint was offered to the Disciplinary Board of Medical Sciences with the request to promote further decision-making in consultation with the Royal Dutch Medical Association and the Ministries of Health and Education.

Next, the medical schools were asked by the Disciplinary Board of Medical Sciences whether they are (1) willing to accept the objectives as formulated in the Blueprint as directives for the programming of their curricula and (2) ready and able to test their educational programmes by the Blueprint and if necessary to adjust those programmes. The Royal Dutch Medical Association and the Dutch Hospital Association were also asked to comment on the Blueprint.

Now, in December 1994, all the above mentioned organizations have reacted in a positive way. It is the unanimous opinion of the Disciplinary Board of Medical Sciences that the Blueprint is a document of great value. However, one has to be aware that its value depends upon the way it is handled at different schools. The Board is glad to notice that several schools have become already active now in this field.

It is the intention of the deans to investigate periodically the progress which is made in the processes of both comparing the curricula with the objectives of Blueprint and with the resulting adjustments.

According to the Board, the Blueprint has to be considered as an instrument for the quality insurance of the medical curricula. At the occasion of the second External Programme Review of the medical schools in The Netherlands in 1997, the results of the process of testing and adjusting the curricula can be evaluated. The Visiting Committee can ask then individual schools to elucidate whether - and if yes why - deviations from the Blueprint have taken place.

The Board has adopted the recommendation to strive after common guidelines for the final examinations. In this examination attention has also to be given to the assessment of skills and attitudes. Concrete proposals will be prepared by a national committee to be appointed shortly.

For the benefit of professionalism in medical education the initiative has recently been taken to start a co-operation at a national level in the field of advanced educational training of medical teachers. Recently, a certified foundation - being a joint venture of the Disciplinary Board of Medical Sciences and the Dutch Association for Medical Education - has been established for that purpose.

Concerning the undesirability of specialization before graduation the deans take up a similar position as the medical schools. The Disciplinary Board of Medical Sciences is in agreement with the Blueprint when it is stated that the period of clerkships belongs fundamentally to the undergraduate part of the educational continuum. The interface is situated between the initial, mainly scientific training period and advanced vocational training. A separate preregistration period is rejected therefore.

By now both the Minister of Education and the Minister of Health have been informed about this point of view of the Board. Talks are going on about the way in which the Blueprint is mentioned in the new legislation about the practice of the health professions.

Nijmegen, 15 December 1994

Professor G.B.A. Stoelinga
Chairman Central Coordination Committee

PREFACE TO BLUEPRINT 2001

Blueprint 1994 was the first document in which the final objectives of medical education in the Netherlands were presented in a well-organized format.¹ Although comparable documents were available before, the Blueprint was, and still is, a forerunner on the European continent.^{2 3 4} The impact it has made is evident: both medical schools and students use the Blueprint as a guideline for their teaching and learning programmes. The description of the competence required for qualification as a medical doctor in the Dutch law on Professions in Individual Health Care is derived from Blueprint 1994. The English translation has received considerable interest from abroad. Following the example of the Dutch Blueprint, similar developments are taking place in other European countries.⁵

The Coordination Committee that supervised the making of Blueprint 1994 declared that the validity of the objectives formulated in 1994 was of limited duration and that periodical adjustment would be necessary. Accordingly, a new committee was appointed by the Disciplinary Board of Medical Sciences of the Association of Universities in the Netherlands in 1999. The committee was assigned to make the following adjustments to Blueprint 1994:

1. Textual adjustments, with much importance placed on analysis and, wherever possible, incorporation of comments on Blueprint 1994;
2. Rearrangement of the list of problems, based on the literature and experiences;
3. Modification of the list of skills, particularly the classification.

Although strongly tempted to cast portions of the Blueprint in an entirely different mould, the committee has managed to stay within the boundaries of an *adjustment*. This adjustment goes beyond mere textual changes, but the original points of departure have been retained. Much time and attention has been devoted to the *General Objectives*. The committee has tried to clarify the structure and wording of the Blueprint and, in addition, it has introduced some changes in content, partly in response to comments received from 'the field' since the publication of Blueprint 1994. The scientific associations responsible for postgraduate training and the Training Colleges of the Royal Dutch Medical Association (the Central College of Medical Specialties (CCMS), the College of General Practice and Nursing Home Medicine (CHVG) and the College of Public Health Medicine (CSG) were asked to comment on the final draft. Their suggestions have been partly adopted. The committee is responsible for the final text.

Other problem lists that had become available since the publication of Blueprint 1994 gave rise to the question whether the concept of 'problem' as used by the Central Coordination Committee of Blueprint 1994 was still a suitable basis for the list of *Problems as starting points for training*. After ample study and debate it was decided to maintain the original list. The guiding principle was to restrict the list of problems to problems for which the patient consults the doctor (this means exclusion of secondary problems such as those found on additional investigations). As a result only minor modifications were made to the original list. The committee did, however, improve the structure of the list.

The General objectives and the Problems constitute the main body of both Blueprint 1994 and Blueprint 2001. Although the *Discipline-related objectives* were published as appendices to Blueprint 1994, their status has not always been correctly interpreted by everybody. The fact that the Blueprint and the

appendices were published together as one document added to the confusion. The committee has tried to resolve the confusion by replacing chapter 9 of Blueprint 1994 – in which the discipline-related objectives are listed - by a separate Appendix containing the *Skills list* and the *List of clinical pictures*. It is hoped that this format will convey the message that the actual objectives are contained in the *General objectives* and the *Problems as starting points for training*, whereas the lists in the Appendix are merely intended as tools: the skills are needed to manage the problems and meet the objectives; the clinical pictures are intended as a learning aid for students.

Nevertheless, the committee has arranged the *List of skills* in a new, discipline-unrelated way, thereby reinforcing the development towards the formulation of discipline-independent objectives. The starting points are presented in the explanatory notes to the list.

It has been discussed extensively whether the *List of clinical pictures* should be retained or not. Both students and scientific associations have urged that the list be maintained. In the end, the committee decided that the objections to the list (improper use, e.g. to justify claims for teaching time, use as a checklist, et cetera) do not carry sufficient weight to warrant disregard for the wishes of so many. However, the list is an appendix and not to be regarded as part of the objectives. The list is the same as the one included in Blueprint 1994. As a result its discipline-related character has remained unaltered.

The expectations expressed by Professor G.B.A. Stoelinga, Chairman of the Central Coordination Committee of Blueprint 1994, ‘that this Blueprint will be speedily accepted and assimilated by the medical schools, and that it will lead to further improvements in medical education’ appear to have been vindicated. We hope that the adjusted Blueprint is more complete and at the same time more concise and therefore (even) easier to use. We thank all those who have contributed by offering suggestions and comments, and above all the members of the Project Group who have devoted so much of their time and energy to the project during the past eighteen months.

On behalf of the Supervisory Committee,

Professor H.J. Huisjes, chairman

Wherever the expression doctor is used in this report, it refers to a doctor who has just passed his or her medical final examinations.

*Wherever in this report the **masculine** is used, it also refers to the **feminine**.*

1. INTRODUCTION

1.1 BACKGROUND OF THE PROJECT

Blueprint 1994 was published with the express undertaking to periodically revise the objectives of undergraduate medical education in accordance with the sixth recommendation of Blueprint 1994: 'In order to maintain sufficient flexibility, the Blueprint should be revised every five years, taking into account new developments in health care and society (..)'.

Preproject

Despite the intention to carry out a revision every five years, the decision to undertake the present adjustment was deferred until a preproject commissioned by the Disciplinary Board of Medical Sciences of the Association of Universities in the Netherlands (in which the deans of the eight medical schools in the Netherlands are represented) had been carried out during the first months of 1999. The reason for the delay was concern that an earlier thorough revision would be premature in the light of curricular restructuring that was underway in all medical schools at that time and which used Blueprint 1994 as a guideline.

The aim of the preproject was to examine whether - and if so how - Blueprint 1994 should be revised. The preproject involved a round of talks with all medical schools. The general conclusion was that there was broad support for the Blueprint, although the presentation needed improvement. The Disciplinary Board of Medical Sciences decided that the results of the preproject gave sufficient reason to launch the 'Adjustment Blueprint 1994' project on 1 January 2001.

1.2 THE 'ADJUSTMENT BLUEPRINT 1994' PROJECT

In accordance with the assignment the project had three goals. *Firstly*, textual modifications of Blueprint 1994 were required, partly based on comments on Blueprint 1994 received since its publication and partly in response to recent developments in health care and society. As a result the general objectives in chapter 7 of Blueprint 1994 were revised. The Profile of the doctor at the end of undergraduate medical education (Chapter 6 of Blueprint 1994) has been retained in its original form. The considerations that led to this decision were on the one hand that the contents of the profile of the doctor are still valid and on the other hand the wish not to interfere with a new project on the medical education continuum, which entails detailed analysis of medical undergraduate and postgraduate education.

Rearrangement of the list of problems as starting points for training (chapter 8 of Blueprint 1994) was the *second* goal of the project. It was not the contents of the list that were under discussion, although some of the problems in the list did not meet the criteria for 'problems' (doctor instead of patient problems, secondary problems emerging after further investigations instead of the primary problem for which the patient consults the doctor) and consequently have been eliminated from the adjusted Blueprint. The main criticism of the list of problems was, however, its lack of classification. Although the original list was organized by regions to a certain extent, this was not clearly recognizable. It had to be

considered whether more clarity and structure could be achieved by classification of the problems.

A *third* focus of attention was the list of skills. In chapter 9 of Blueprint 1994 the list was organised by clinical disciplines, as was the list of clinical pictures. Although it was stated in the text that this chapter was an appendix, the skills list and the list of problems have caused misunderstandings, re-occurrence of which had to be prevented by adjustments to the text of the new Blueprint.

Following the general objectives and the list of problems, the list of skills had to be formulated in a discipline-unrelated way. The focus should be on the skills to be mastered by students by the end of the undergraduate curriculum, whereas it is far less important which disciplines require performance of a particular skill or are involved in the teaching of that skill. There are inconsistencies between the various lists of skills in Blueprint 1994, with different levels of mastery being required by different disciplines, unnecessary duplications and too much detail in the descriptions of various skills. Disengaging the skills from the disciplines allows presentation of the required skills in a more organized way and spread over the field of medicine. This approach also emphasizes that students are trained to become general physicians and offers medical schools more freedom to follow their own ideas in developing skills training programmes. Nevertheless, the list of skills has kept its status of an (now separately published) appendix.

At the start of the project it was assumed that the list of clinical pictures would be withdrawn as it led to many misunderstandings and improper use of the list, e.g. to justify claims for teaching time and as a checklist. In Blueprint 1994 it was stated that the list of clinical pictures was an appendix, intended to provide an overview of the knowledge required in 1994 to meet the general objectives and manage the patient problems included in the problem list. Although these considerations in themselves are insufficient reason to maintain the lists, it was decided to publish the lists together with the list of skills as a separate appendix for the information of the users of the Blueprint. This was done – as mentioned in the preface – at the request of a number of scientific associations and the National Organization of Clerks (LOCA), who see the lists as a welcome addition to the Blueprint. Many students have found the lists to be of great use in preparing for tests and for evaluation purposes, particularly during the clerkships.

The adjusted Blueprint and the law on Professions in Individual Health Care

The adjustment of Blueprint 1994 was complicated by legal aspects. Since the publication of Blueprint 1994, the general objectives and the list of problems have obtained legal status. They were incorporated into the law on Professions in Individual Health Care. In consultation with the Ministry of Health it was decided that this should not affect the adjustment of Blueprint 1994 and to accept any need for modifications of the law that might arise from the adjustment. Indeed any alteration in the text of chapters 7 and 8 of Blueprint 1994 – however small and exclusively textual it may be – will inevitably necessitate modification of the law. This created the opportunity for the project group to perform a more thorough editorial revision and introduce any changes considered desirable, whilst not violating the essentially marginal character of the revisions.

1.3 SUPERVISORY COMMITTEE AND PROJECT GROUP

A Project Group was set up to carry out the assignment. It was composed of staff members of the Clinical Training Centre of the University Medical Centre St Radboud, Nijmegen University, the Netherlands.

The Project Group was supported by a Supervisory Committee, appointed by the Disciplinary Board of Medical Sciences of the Association of Universities in the Netherlands. The members of the Project Group were representatives of the eight Dutch medical schools. Three consultants were designated to the Project Group: one from the Ministry of Health, one from the Royal Dutch Medical Association and one from the National Organization of Clerks. A supernumerary chairman and secretary were appointed.

The membership of the Supervisory Committee and the Project Group was composed of:

Supervisory Committee:

Chairman: Professor H.J. Huisjes, M.D., Ph.D. (Groningen)
Secretary: Professor J.C.M. Metz, Ph.D. (Nijmegen)
Members: Professor D.J. Gouma, M.D., Ph.D. (Amsterdam AMC)
Professor J.B.van der Meer, M.D., Ph.D. (Groningen)
A.K.Oderwald, Ph.D. (Amsterdam VU)
J.J.P.Schrander, M.D., Ph.D. (Maastricht)
T.A.W.Splinter, M.D., Ph.D. (Rotterdam)
Professor M.P.Springer, M.D., Ph.D. (Leiden)
Professor P.M.J. Stuyt, M.D., Ph.D. (Nijmegen)
Professor W.A.van Vloten, M.D., Ph.D. (Utrecht)
Advisors: P.J.W.M. de Kroon, LL.M. (Ministry of Health)
Mrs J.A. Schulkes – van de Pol, M.D. (Royal Dutch Medical Association)
B. Jacobs, clerk (National Organization of Clerks)

Project Group:

Coordinator: Professor J.C.M. Metz, Ph.D.
Members: Mrs A.M.M. Verbeek – Weel, educationalist
Mrs I. Meyer – Reinders, secretarial support
Ms I. Reulen, secretarial support

2. DEVELOPMENTS IN DUTCH LEGISLATION

2.1. LAW ON HIGHER EDUCATION AND SCIENTIFIC RESEARCH

On 1 August 1993 the law on Higher Education and Scientific Research became effective. It regulates undergraduate medical education in the Netherlands. The new law ended the division of undergraduate medical education into two phases, a mainly theoretical phase of four years and a clinical phase (clerkships) of two years. This offers more opportunities to integrate clinical and theoretical aspects of medical education. New legislation on student grants increased the urgency for medical schools to enable students to complete medical education within six years. This requires careful programming to avoid waiting times and other delays. All essential subjects must be covered by the undergraduate curriculum.

2.2 LAW ON PROFESSIONS IN INDIVIDUAL HEALTH CARE

2.2.1 *General*

The law on Professions in Individual Health Care contains regulations that apply to all health care professions recognized by the Minister of Health and to health professionals who provide care for individual patients. The law applies to professionals in private practice and those in employment. The purpose of the law is to control and improve the quality of professional education and practice. The law replaces over ten other laws, including the law on practising medicine and the medical disciplinary law. The new law became effective on 1 December 1997.

2.2.2 *Protection of title*

The underlying principle of the law on Professions in Individual Health Care is that it is no longer illegal for unqualified persons to practise medicine. With the exception of certain restricted actions (see below), anyone is allowed to perform medical actions without carrying a professional title. At the same time a system of registration and title protection was introduced for the professions named in the law, among which are doctors. Those who are registered obtain the right to bear a legally protected title. This title signifies to the public and health insurance companies that the person carrying the title possesses special expertise in a specific domain of health care. In order to obtain the protected title, a doctor must, however, satisfy a number of legal requirements, among which training requirements are of paramount importance. The law stipulates that anyone wanting to register as a doctor, should possess a certificate proving that he or she has complied with the legal training requirements.

2.2.3 *Restricted actions*

An important part of the new law is concerned with the regulation of restricted actions. As pointed out previously, the basic principle is that anyone can perform medical actions. The only exceptions are formed by a limited number of actions that involve large risks for a patient if performed by an inexperienced practitioner. For these actions, control of qualification will be maintained. This means that only professionals who are qualified according to the law on Professions in Individual Health Care and who

are registered accordingly, are allowed to perform those actions. However, it is possible for professionals not belonging to this group to perform restricted actions, provided they are supervised and guided by a professional who has the statutory qualifications (authorization). The following restricted actions are listed in the law: surgical actions, obstetric actions, catheterisations and endoscopies, punctures and injections, anaesthesia, the use of radio-active substances and ionising radiation, cardioversion, defibrillation, ECT, lithotripsy and artificial fertilization.

2.2.4 Doctors who are qualified to practise medicine independently

Under the law on Professions in Individual Health Care doctors are considered competent in all domains of medicine, and are therefore independently qualified to perform all restricted actions. They can decide what action is indicated and whether they will perform an action themselves, or assign it to another practitioner. However, the qualification for independent performance of the restricted actions is limited by doctors' (individual) competence to perform the action properly.

2.2.5 The law on Professions in Individual Health Care in relation to Blueprint 2001

Apart from general articles about education, the law on Higher Education and Scientific Research contains an article referring to the law on Professions in Individual Health Care with regard to specific training requirements for qualification as a doctor. The article states that a General Administrative Order must be enacted, in which the training requirements for doctors have to be laid down.

The General Administrative Order was completed before the law on Professions in Individual Health Care became effective (1 December 1997). The general objectives and the problems as starting points for training formulated in chapters 7 and 8 of Blueprint 1994 form the basis of the General Administrative Order. This means that these chapters of Blueprint 1994 have obtained legal status.

2.3 EUROPEAN GUIDELINES

As was done during the development of Blueprint 1994, during the process of designing Blueprint 2001 special attention was paid to European guideline 93/16 and to the recommendations of the Advisory Committee on Medical Training of the European Community.⁶

2.3.1 Guideline 93/16/EEC

The most recent version of the guideline for doctors is dated 5 April 1993.⁷ It concerns a codification of the guideline of 1975 and subsequent changes. Purpose of this guideline is to facilitate free passage of doctors and mutual recognition of their certificates between the member states of the European Union/European Economic Area (EEA). The guideline contains minimum criteria for undergraduate and postgraduate medical education. Furthermore, one part of the guideline is concerned with the education of general practitioners. If a doctor has completed a vocational training programme for general practice, he is qualified to practise independently as a general practitioner within the European Union/European

Economic Area. The very existence of vocational training indicates that the general objectives of undergraduate medical education cannot aim at a full qualification for practising medicine independently.

2.3.2 Recommendations of the Advisory Committee on Medical Training of the EU

At the end of October 1993, the Committee established recommendations for the undergraduate curriculum of medical schools. If these recommendations are followed, the future doctor who has just passed his final examinations will have at his disposal the necessary knowledge and (social) skills to function as a doctor insofar as he is competent, or to enter a postgraduate training programme.

During undergraduate training, doctors must be prepared adequately for any postgraduate training programme. Postgraduate specialty training is mandatory for all doctors who want to practise medicine in the social security system.

The advisory committee came to the following conclusions:

- the primary goal of the undergraduate curriculum is provision of the appropriate knowledge, skills, attitudes and ethical values;
- the number of years of study remains unchanged at six, or a minimum of 5,500 hours of theoretical and practical education per year;
- undergraduate training must prepare the doctor for adaptation to changes in medical practice during postgraduate and continuing medical education;
- the curricula should be composed of two core parts, i.e. basic sciences and clinical sciences, which may be integrated. The sciences basic to medicine include also psychology and human behaviour;
- basic sciences teaching should be medically oriented, primarily practical and tailored to what is required for the clinical sciences;
- overload of the medical curricula should be avoided;
- a transition should be made from passive instruction to active learning;
- core and options within the curricula should be reviewed regularly;
- clinical teaching in the hospital setting should be increased and teacher/student and student/patient contacts should be extended;
- attention should be paid to methods of learning and assessment. Attention for the latter should not have a negative effect on the learning process;
- participation of students in curriculum appraisal should be stimulated;
- clinical teaching outside the hospital (ward) is recommended.

Furthermore, the Advisory Committee stressed that medical education should concentrate on students and not on subject matter. Attention must be paid to the learning of methods for identifying, formulating and solving specific - fundamental, but especially clinical - problems, on the basis of a multidisciplinary approach. Theoretical and practical training of diagnostics is an essential component of education.

The Advisory Committee also recommended that a European medical final examination be developed as well as a system of quality control.

3. BLUEPRINT 2001: EXPLANATION

3.1 GENERAL

3.1.1 Blueprint 1974

In 1974 the joint medical schools in the Netherlands described the common requirements of Dutch undergraduate medical education in a document entitled Blueprint 1974. This blueprint was based on the broad outline given in the University Charter of 1973. The medical schools wished to stress that undergraduate medical education no longer turns out doctors who are immediately ready to perform at a full professional level. This was also implied in the term 'basic doctor', which applied to medical graduates: not an end product, but a doctor who has finished a basic training programme and is ready to start further professional training. Phrases in Blueprint 1974 beginning with the words 'necessary at the start of professional life' should be interpreted from this perspective.

In Blueprint 1974 an effort was made to avoid both the overemphasising of knowledge and the mere enumeration of disciplines from previous charters. Moreover, by choosing general terms, the individual autonomy of the medical schools was preserved. This resulted, however, in goals that were hardly or not at all suitable as a practical basis for the development of medical curricula.

3.1.2 The need for a Blueprint 1994

In the early nineties demands for more precise common characteristics of medical training in the Netherlands continued to increase. In a national report on the educational aspects of clerkships, the establishment of final objectives was one of the recommended actions to improve medical education. This recommendation was adopted both by the medical schools and the government. It was reaffirmed in the reports of the Visiting Committees of the External Programme Reviews of Medicine and Health Sciences in 1992 and 1997. This finally resulted in the publication of Blueprint 1994; objectives of undergraduate medical education in the Netherlands.

Objectives defined at a national level can give direction to the content and the educational structure of the training programme, thereby reducing the differences between the eight medical schools. The objectives offer opportunities for better control and assessment of the quality of medical education. Furthermore, Blueprint 1994 has created the possibility to develop national guidelines for the medical final examination (report of the committee of the joint medical schools on guidelines for the medical final examination). In anticipation of the development of objectives of medical education in other countries of the European Union, the Blueprint enables comparison of the content of medical qualifications obtained in different countries.

The availability of final objectives may be of significance for students, too. Their learning process can be more effective and they are better able to prepare for the examinations. This is all the more important today with increasing pressure on the time and resources available for university studies. As early as 1992 a ministerial advisory committee noted that the 'doability' of educational programmes is enhanced

by clearly established final objectives. Educational programmes based upon clearly stated final objectives are an important condition to facilitate the exchange of students between different universities and countries. They offer senior students and newly qualified doctors a better opportunity to gain experience abroad.

The availability of objectives of undergraduate medical education means that for all postgraduate medical training programmes the entrance levels are known and further postgraduate training can be planned accordingly. Finally, society too has an interest in stated objectives. It will be clear what can be expected from a doctor by the end of undergraduate medical education (for example within the framework of the law on Professions in Individual Health Care).

3.1.3 The reason for the publication of Blueprint 2001

Blueprint 1994 is highly regarded both nationally and internationally. It has contributed to recent curriculum changes in Dutch medical schools. The use of the Blueprint in curricular development revealed that some passages are open to misinterpretation. This was especially the case for the discipline-related objectives: the clinical pictures and skills. Too much weight was attached to the lists, which were originally merely intended as an appendix to illustrate the actual objectives. They offered no more than an overview of the knowledge and skills that were needed to address the problems in the problem list. The adjustment of Blueprint 1994 was partly driven by the desire to clear up the misunderstandings surrounding the use of the discipline-related objectives.

Discipline-related objectives are no longer compatible with current thinking on medical education, which emphasises integration. The lists of clinical pictures and skills that are published as a separate appendix to Blueprint 2001 serve an illustrative purpose only. The skills list is no longer arranged by disciplines, but is discipline-unrelated. A similar rearrangement of the list of clinical pictures has not (yet) been made.

Blueprint 1994 pointed out the importance of periodic adjustment of the objectives. Health care, education for the health care professions and society are dynamic forces. The current adjustment is an attempt to bring the objectives into line, albeit only marginally, with current developments. Regular updating of the objectives of medical education will have to be an ongoing process.

3.1.4 Preventing misunderstandings

It must be explicitly noted that the final objectives described in the Blueprint do not detract from the responsibility that individual medical schools have for the design of their educational programme and their desired individual profile. The final objectives refer only to components of education with a direct relationship to (the preparation for) medical practice. They leave room for the inclusion of elective courses (which should comprise 30% of the total available time, according to recommendations of the Visiting Committee of the External Programme Review of Medicine and Health Sciences). The objectives concern common educational requirements which all medical schools can guarantee and all doctors trained in the Netherlands can be expected to meet, regardless of the school from which they have graduated.

The objectives formulated for undergraduate medical education only reflect one moment in time. It cannot be overstressed that practising a medical profession implies a lifetime of learning. In fact, many objectives described in the Blueprint have the characteristics of a process, and will therefore only be fully achieved during postgraduate education and professional practice (continuing education), i.e. in the course of the medical education continuum. This does not preclude that the process of achieving the final objectives should start during undergraduate medical education. That is why the objectives have to be established before the end of undergraduate education.

3.1.5 *The term 'final objectives'*

'Final objectives' can also be termed 'educational requirements'. Both phrases refer to the characteristics of the 'product' of the training programme. There are two possible ways of describing the final objectives, i.e. final objectives as a concept, and final objectives as an overview of training requirements. In Blueprint 2001, the final objectives are formulated in both ways.

Firstly: final objectives as a concept. If one wishes to characterise the final objectives for the doctor in this way, one should describe the doctor's profile. In other words, one should answer the questions: What is a doctor? and What can be expected of him? There is no easy answer to these questions, because undergraduate medical education no longer directly prepares for independent practice. With the introduction of the new law on Professions in Individual Health Care, however, a certain degree of independent action is foreseen for qualified doctors without any postgraduate training. In Blueprint 1994 an attempt was made to outline the professional profile of the doctor; this profile is still valid and was therefore included unchanged in Blueprint 2001. The contours are visible of a scientifically trained, novice professional who is broadly trained and qualified to embark on any postgraduate training programme. He is sufficiently competent to justify his legally protected title. Additionally, he is permitted to practise medicine independently, to a certain degree, and he can be held accountable for his actions. During undergraduate training this modest independence should be anticipated, for instance by a gradual increase in students' responsibilities during the clerkships.

Secondly, the term general objectives refers to an overview of training requirements. These are presented in Blueprint 2001 as listings of general objectives and problems as starting points for training.

3.2 LAYOUT OF BLUEPRINT 2001

Profile of the doctor at the end of undergraduate medical education

General objectives

Problems as starting points for training

Separate Appendices:

- List of skills
- List of clinical pictures

First of all, Blueprint 2001 provides a general picture of the doctor (profile of the doctor, chapter 4). If this picture is to be used to design final objectives from which concrete educational programmes and exam questions can be derived, this rather sketchy image needs to be filled out with more details. This necessitates an inventory of desirable characteristics of the 'end product'. In Blueprint 2001, the final objectives are presented in two chapters:

- general objectives (chapter 5)
- problems as starting points for training (chapter 6)

In the **general objectives**, the knowledge, skills and attitudes that are needed to function adequately as a doctor are described. The doctor's functioning is divided into four topics: medical aspects, scientific aspects, personal aspects, and aspects regarding society and the health care system. These objectives apply to the entire field of medicine.

The **problems as starting points for training** concern problems that any doctor must be able to handle. In this section the importance of the process of problem-oriented thinking in medicine is stressed.

To be able to handle the problems, the newly qualified doctor must have attained proficiency in a number of skills and knowledge of diseases / possible diagnoses. A list of skills and a list of clinical pictures are presented in a separate appendix to Blueprint 2001, by way of illustration.

The aim was to keep the number of subjects in every part of the objectives to a minimum. The doctor who has not yet embarked on postgraduate training was the criterion in determining the desired level.

3.3 METHOD

In chapters 4 and 5 the professional profile of the doctor and the training requirements are described. First, in section 3.3, the procedure by which these descriptions were developed is presented under the same headings and in the same sequence as those used in the Blueprint itself.

3.3.1 Profile of the newly qualified doctor

This profile was formulated by the Project Group and the Central Coordination Committee of Blueprint 1994. The profile was considered to be still valid for Blueprint 2001.

3.3.2 General objectives

Since the publication of Blueprint 1994 many (associations, people) have reacted to the Blueprint by offering comments and suggestions. The supervisory committee has taken note of all these comments and given them careful consideration in making decisions regarding the adjustment of the general objectives. Some sections have undergone more radical changes than others. Section 5.5 in particular (aspects regarding society and the health care system) was revised extensively - also with the help of external experts. A large number of scientific associations were asked to comment on the resulting draft. It was decided to approach only associations of medical specialties with accredited training programmes, for they are the ones who must use the final objectives of undergraduate training as entrance requirements for postgraduate training. The comments of the scientific associations were discussed by the supervisory committee and, if relevant, incorporated into the final document.

3.3.3 Problems as starting points for training

Firstly, other similar lists (national and international) were examined to see if they could be helpful in rearranging the problem list. No usable criteria were found. Next, the committee decided to scrutinize the list of problems in Blueprint 1994. Decisions as to whether to include a problem in the list or not were taken using as the guiding principle that the problems should be restricted to patient problems in contrast to doctors' problems. The - limited number of - doctors' problems that were identified were eliminated from the list or reformulated as patient problems. Moreover, the committee inserted subheadings to stress the - already implicitly present - arrangement by regions.

3.3.4 List of skills

Again, first existing discipline-unrelated lists of skills which might have been developed by some medical schools were sought. Inquiries at Dutch medical schools revealed that any attempts to compile such a list had been only partly successful. The project group drafted a preliminary list of skills described in general terms. Subsequently, a small working group composed of several members of the supervisory committee proposed a much shorter, clustered list of skills, without any indication of levels. After a number of small adjustments had been made, the proposed list finally resulted in the list of skills that is included in the separate appendix to Blueprint 2001. Again it should be stressed that the skills list is not an integral part of the general objectives. Its purpose is exclusively illustrative.

3.3.5 List of clinical pictures

The committee spent much time debating the question whether the discipline-related list of clinical pictures should be maintained or not. Initially, the prevailing view was that the list should not be included in the adjusted Blueprint. However, the subject was again put on the agenda when the committee received a letter from the National Organization of Clerks advocating inclusion of the list of clinical pictures. As a result of this plea the project group prepared a memorandum setting out the different functions of goals and final objectives. Eventually, the committee decided to publish the list unchanged - and for illustrative purposes only - in the separate appendix to the Blueprint.

3.4 PROBLEMS AND CHOICES

3.4.1 Choices made with respect to the general objectives

The main goal of the project was textual adjustment of Blueprint 1994. In order to formulate the general objectives in a more uniform way, it was decided that in the description of each of the objectives the following wording and sequence would be used in as consistent a way as possible:

The doctor

- demonstrates : professional conduct*
- is able to : skills
- has knowledge of (and/or insight into) : knowledge

The underlying principle of the objectives is that students should acquire competence with respect to the process of medical problem-solving as well as a solid scientific basis. Practical skills and factual knowledge are subordinate to these goals. This is also reflected in the new curricula that have been (or are being) developed by the eight Dutch medical schools and for which Blueprint 1994 was generally used as a guideline.

The supervisory committee was asked explicitly to take account of the comments and suggestions in response to Blueprint 1994 in developing the adjustments. The inevitable consequence of this approach was that the content of the general objectives was updated also. In Blueprint 1994 it was already stated that the profile of the doctor should include - even more so than in the recent past - elements relating to interprofessionsl teamwork in addition to elements relating to the care of individual persons. In recent years multiprofessional collaboration (e.g. between doctors, nurses, physiotherapists, midwives) has become increasingly important. Another development concerns the increasing number of patients from different cultures. The accessibility and quality of Dutch health care services appear to be not sufficiently tailored to the health care needs of these patients. The adjustment of the final objectives entailed efforts to bring the objectives in line with recent reports on developments in health care.

* The term 'professional conduct' is preferred to the term 'attitude' used in Blueprint 1994. The first term emphasizes that in this context only the external observable behavioural aspect of the professional attitude is discussed.

A key issue in the adjustment of the general objectives was chronic disease. The group of patients with chronic disorders is large and continuously increasing. The chronicity of their illness makes these patients regular users of health care; doctors should expect to see more of these patients more and more often. Blueprint 1994 was explicitly focused on the patient presenting with a problem that can be resolved and who will be able to return to a normal healthy life after he or she is cured. For chronically ill people the situation is radically different; that is why in Blueprint 2001 attention is drawn to the care for the chronically ill.

Regarding the place of basic sciences in Blueprint 2001, the committee shares the view of the Central Coordination Committee in Blueprint 1994. Knowledge of basic sciences - both natural and social sciences - is of vital importance to medical practice. Although basic science learning objectives are likely to increase in importance, within the context of the Blueprint they should be regarded as a prerequisite of the final objectives. Therefore, they are described in general terms in Blueprint 2001.

It is the individual medical school's responsibility to determine content and form of basic science teaching. Efforts by different disciplines (physiology, anatomy, medical psychology) to collaborate with other medical schools in educational development deserve every praise and support and are not at odds with the underlying principles of Blueprint 2001.

The special character of the content of section 5.5 (Aspects regarding society and the health care system) prompted the decision to first submit the subsection on medical ethics (5.5.2) to an expert in this area. The main objection to the text in Blueprint 1994 was that it presented a mixture of skills and knowledge. As a consequence, skills and knowledge are presented separately in Blueprint 2001. The resulting new design served as a model for the other subsections of section 5.5. Furthermore, it was decided to integrate the subsection on financial aspects into subsection 5.5.1 Public health and health care.

3.4.2 How to prevent the doctor from becoming the 'sum' of requirements from the different disciplines

Another difficulty in the formulation of the final objectives of undergraduate medical education is that the objectives are not really 'final' objectives, but rather 'intermediate' objectives. Almost every newly qualified doctor will need further training to be able to work as a more or less specialized professional. Blueprint 1994 already strove to prevent that the doctor would be the sum of knowledge and skills from a number of disciplines. The final product of medical education, formerly called the 'basic doctor', should not become a 'budding' internist, GP or geriatrician.

Efforts have been made to provide in Blueprint 2001 a description of the doctor as a broadly educated professional by placing even more emphasis on the profile of the doctor, the general objectives and the problems the doctor must be able to handle. A doctor has the appropriate professional attitude, is competent in the processes of medical problem-solving, and in a wide range of knowledge and skills, i.e. the newly graduated doctor is someone with the appropriate scientific and practical basis for entering any postgraduate medical training programme. The knowledge and skills relating to the different

disciplines which the doctor has acquired will give him sufficient insight into the methods used in these disciplines to prepare him for interdisciplinary cooperation in professional practice. His knowledge and skills enable the doctor to handle all patient problems at a certain level. Handling may also mean that the doctor reassures the patient or refers the patient to the proper person.

3.4.3 Choices made with respect to the list of problems

In order to prevent duplication we refer to sections 3.3.3 and 6.1 for this topic.

3.4.4 Choices made with respect to the list of skills

Even though the list of skills is not part of the objectives, but serves to illustrate and is therefore presented in a separate appendix, it was decided to change the list in order to present a clear overview that is easier to use than the lists in Blueprint 1994.

In the *first* place, because there is now one list of general skills illustrating what a doctor should have mastered by the end of his initial training in order to meet the requirements of the final objectives. Skills are no longer grouped by discipline but classified under the following six headings: history, physical examination, additional investigations, communication and record keeping and public health. Physical examination skills are presented by region, a structure that is comparable to that of the list of problems. The skills have been formulated in general terms whenever possible with details / examples in italics. The student should be able to gain a general idea of which actions he should be able to perform competently by the end of undergraduate medical training. Naturally, he should also be able to interpret the results and findings, but these skills are included in the general objectives. In addition, the supervisory committee takes the view that the integral supervision of normal births is no longer part of the doctor's basic skills.

A *second* notable change is that the distinction between different levels of mastery has been abandoned. It is the opinion of the supervisory committee that the skills listed in 'Blueprint 1994' as requiring competence at level 1 (only theory) and level 2 (seen/demonstration) were of little practical significance and therefore could be left out. Since the committee saw little difference between level 3 (application/performance) and level 4 (routine), these levels have been combined.

These two adjustments have eliminated several duplications. A number of skills were listed under more than one discipline, sometimes even with different levels of expected mastery. In principle skills are listed only once in Blueprint 2001. Blueprint 1994 listed a number of skills more than once due to special uses of the skill, e.g. in paediatrics. In the new general skills list these skills are mentioned only once, assuming that age differentiation is self-evident. A very limited number of skills is mentioned more than once in Blueprint 2001. An example are history-taking skills. These are included in the general objectives and are mentioned again in the list of skills for the sake of completeness.

3.4.5 Choices made with respect to the list of clinical pictures

In order to prevent duplication we refer to section 3.3.5 for this topic.

3.4.6 Updating of the objectives

It is important that the objectives relating to areas where new developments are taking place should be updated regularly. Some of the currently formulated objectives may already be outdated. In order to keep the objectives up-to-date it is important to keep abreast of new developments. This will enable continuous adjustment of the objectives.

4. PROFILE OF THE DOCTOR BY THE END OF UNDERGRADUATE MEDICAL EDUCATION

(unaltered with regard to the Blueprint 1994)

During undergraduate medical training the doctor has experienced a period of learning (knowledge), training (skills) and (attitude) formation. A description of the common minimum product of medical education in the Netherlands requires more than a list of the final objectives (general and discipline-related): the doctor is more than just the sum of these objectives. A profile was devised to create a picture of the doctor and to indicate what can be expected of him.

When reading this profile, one should be aware of the fact that it concerns a doctor who has just passed his medical final examinations. Further development is needed in many areas as well as further formal training for future practice. The doctor cannot be expected to display knowledge, skills and attitudes at the same level as a more experienced colleague.

The major qualities and characteristics of the doctor are that he:

- has acquainted himself with the process of medical problem-solving
- has mastered a broad range of knowledge and skills, which enables him to enter any type of postgraduate training and to cooperate with other disciplines/ care providers
- is scientifically educated
- has the appropriate attitudes
- is flexible: can respond adequately to new developments
- is legally qualified and capable to perform medical actions and takes responsibility for these actions. In practicing medicine, the doctor is mindful of his own limits, as determined by education and experience.

These aspects will be briefly described consecutively.

Has acquainted himself with the process of medical problem solving

The doctor is capable of making medical decisions. He must have adequate knowledge and skills (see general objectives, chapter 7) to be able to handle any problem with which he is confronted. The ability to handle a problem implies the skill to work systematically, using the appropriate (diagnostic) strategy, tailored to the request for help, and selecting the appropriate management strategy for the problem. This strategy may also be the decision not to act independently.

Has mastered a broad range of knowledge and skills, which enables him to enter any type of postgraduate training and to cooperate with other disciplines/cares providers

During medical education the doctor has acquired knowledge and experience of aspects of general as well as specific health care, supported by basic and behavioural sciences. In addition, he has gained insight as to the structure of health care.

This broad foundation of knowledge and skills enables the doctor to enter any postgraduate training programme. A broad undergraduate education is also a pre-condition for communication and cooperation with other health professionals and care services in future medical practice.

Is scientifically educated

The doctor is scientifically educated and acts accordingly. This distinguishes him from not academically trained health professionals. He is acquainted with the basic principles of scientific research, not only in the form of scientific knowledge, but also in the form of practical experience through active participation in a scientific research project. He is able to approach scientific data critically and form independent opinions. He has reasonable insight regarding the extent of scientific underpinning of medical practice or of the absence of a scientific basis. He can verify the scientific underpinning of medical actions and communicate information to others.

Has the appropriate attitudes

In order to function as a doctor, he is dedicated to and feels responsible for the physical, mental and social well-being of others. He possesses interpersonal and communication skills: he shows respect for the patient, irrespective of gender, race, age, social and economic status, education, cultural background, sexual preferences and philosophy of life. Furthermore, he can give information to the patient in words that the patient can understand and he is sufficiently able to empathize with the patient and his environment.

In order to function as a doctor, he has learned to take responsibility and to make independent medical decisions, as far as his knowledge and experience will allow and taking into account ethical aspects. As a result he is able to participate actively in the promotion and maintenance of public health: preventing disease and disability, contributing to cure and recovery of the sick, easing suffering and discomfort, and attending the sick in their environment/living situation. He has a critical attitude towards his own work and that of others. He is aware of his responsibility for the functioning of health care as an organization, taking into account financial, logistic, and other limiting factors in health care.

He is aware of the need for good cooperation with other disciplines/caregivers to enable the provision of good quality care and to guarantee continuity of care. He knows that to be able to continue to function adequately as a doctor, he will need to participate in continuing medical education and assessment.

Is flexible: responds adequately to new developments

The doctor can be expected to adapt his knowledge, skills and attitudes to changes in health care, to scientific and social possibilities and developments, and to economic, legal and ethical limitations. He should keep abreast of these developments.

Is legally qualified and capable to perform medical actions and takes responsibility for these actions. In practising medicine, the doctor is mindful of his own limits, as determined by education and experience.

According to the law on Professions in Individual Health Care the doctor is formally qualified to practise medicine with respect to the 'restricted actions'. The limits of his medical practice, however, are determined by his competence.

5. BLUEPRINT 2001: GENERAL OBJECTIVES

5.1 INTRODUCTORY REMARKS

The general objectives present the knowledge, skills and professional conduct necessary to function as a good doctor. Functioning is concentrated around four themes: medical aspects, scientific aspects, personal aspects and aspects related to society and the health care system. Those aspects are discussed that are valid for medicine in its entirety, independent of specific disciplines.

In this chapter the term 'objectives' stands for 'goals to be pursued'. In undergraduate medical education, an initial effort is made to attain the goals described in this chapter. Many of the goals, however, will only develop fully during medical practice. This means that the objectives are not really 'final'.

The general objectives are classified as follows:

Knowledge, skills and professional conduct relating to medical functioning:

- 5.1 Medical aspects
- 5.2 Scientific aspects
- 5.3 Personal aspects
- 5.4 Aspects related to society and the health care system.

In the following sections, detailed descriptions of these aspects are provided in consecutive order.

5.2 KNOWLEDGE, SKILLS AND PROFESSIONAL CONDUCT: MEDICAL ASPECTS

One of the doctor's responsibilities is to analyse and try to resolve independently people's problems relating to health and sickness. In doing so, he must be aware of the fact that gender, age and cultural background are important factors affecting the interpretation and management of health problems. Furthermore, the doctor must be on the alert for risk seeking behaviour of the patient and risk factors in the patient's environment. If he encounters these problems, he must respond adequately. During the diagnostic and therapeutic process and when educating patients on prevention, the patient and, whenever necessary, the patient's environment should be adequately attended. Good cooperation with other health care professionals is also of vital importance. Furthermore, accurate reporting and medical records are essential for continuity of care for the patient, for quality control of this care and for public health.

In the translation of the above into objectives, the following classification has been adopted:

- 5.2.1 Man in somatic, mental and social respect
- 5.2.2 Problem recognition and description
- 5.2.3 History-taking
- 5.2.4 Physical examination
- 5.2.5 Problem analysis I
- 5.2.6 Additional investigations
- 5.2.7 Problem analysis II
- 5.2.8 Management
- 5.2.9 Attending
- 5.2.10 Reporting and records
- 5.2.11 Prevention

The disadvantage of this classification is that it does not show that many aspects of knowledge, skills and professional conduct are often used simultaneously. The process of medical problem-solving, for instance, is a cyclic process and will play a part in most of the above-mentioned items. Attending the patient is listed as a separate section, whereas in practice proper attendance and giving information to the patient will be needed from the very first contact with the patient and in every subsequent step.

5.2.1 Man in somatic, mental and social respect

The doctor has knowledge of and insight into:

- the somatic, mental and social structure and functions of men, women and children, both individually and in their mutual relationships
- normal phases of life and potentially disturbing factors

- human behaviour in various circumstances, especially in problem situations and in different cultural backgrounds

5.2.2 Problem recognition and description

The doctor is able to:

- observe and listen to the patient and to the importance the patient attributes to the complaint. This will give the doctor an impression of the patient's wishes and expectations
- make a list of and name the patient's problems and request for help
- recognize the interaction of multiple (chronic) conditions occurring simultaneously
- interpret the urgency of the request for help (and take immediate action, when necessary)
- recognize traumatizing situations (such as child abuse, sexual trauma, problems of persecution victims)

5.2.3 History

The doctor is able to:

- take a history (present physical and psychological complaints, previous history, mental and social conditions) and in doing so pay attention to medical content as well as to communication aspects
- gather data both systematically and in a hypothesis-oriented way concerning the complaint and pre-existing physical, mental and social consequences
- take a history from a third party

5.2.4 Physical examination

The doctor is able to:

- perform a general physical examination:
 - in a technically adequate way
 - in a systematic and in a directed way

- recognize abnormalities and symptoms
- correctly name and describe findings
- take into account the balance between the burden of the examination and the patient's capability of sustaining the burden

5.2.5 Problem analysis I

The doctor is able to:

- interpret and evaluate data from problem description, history, physical examination and other findings
- assess the urgency of necessary actions
- explore and interpret somatic, mental and social complaints and their interaction
- consider complaints against the patient's background, taking into account:
 - the patient as an individual (personal perception, interpretation and presentation of complaints, age, sex-related differences in symptoms and presentation of illness, cultural background, social context, previous history)
 - epidemiological facts
 - mutual influence of work, health and sickness
- systematically formulate a problem list concerning physical, mental and social functioning
- formulate hypotheses on causes and consequences resulting in a differential diagnosis
- decide, on the basis of insight into personal possibilities and restrictions, to deal with the problems himself or know by what other means the problem can be addressed
- establish when a death is due to natural causes and take appropriate action when there is suspicion of unnatural causes
- take appropriate action with respect to organ and tissue donation

5.2.6 Additional investigations

The doctor demonstrates:

- awareness of the interpretation of the results from investigations and chance findings

The doctor is able to:

- establish to need for additional investigations; take into account in weighing whether or not to undertake further investigations the expected benefits (including false-positive and false-negative results), the relevance to the further decision process, the patient's wishes, the burden to the patient and his social environment (for example informal care) and/or relatives (for example genetic tests), possible complications and costs
- work according to guidelines where possible
- interpret and evaluate the outcome of investigations

The doctor has knowledge of:

- the diagnostic possibilities and the principles of the execution of relevant diagnostic investigations

5.2.7 *Problem analysis II*

The doctor is able to:

- make new connections between data from problem description, history, physical examination and data resulting from any additional investigations
- assess the urgency of necessary actions
- make a motivated probability diagnosis, which can serve as a starting point for advice, treatment and attendance
- re-analyse the problem, if no probability diagnosis can be made at this stage
- check whether the analysis of the problem fits the request for help by the patient and other relevant circumstances

5.2.8 Management

Management plan

The doctor is able to:

- choose among a number of possible management strategies in consultation with the patient, on the basis of the patient's request for help and the findings from the diagnostic process. In making this choice the doctor takes account of the expected effects of treatment in relation to the natural history, patient-related factors (such as gender, age, preferences and wishes of

the patient, personal and family circumstances, compliance), possible side-effects, complications, the need for care and the continuity of care, possible co-morbidity, and costs

'Tailor-made' management plan

for all forms of management / treatment

The doctor is able to:

- determine the therapeutic goal
- propose a management strategy, with serious consideration being given to the option of no therapy
- take account of the cost aspect in these considerations
- take into account factors and circumstances that may have a negative or positive effect on the institution of therapy (for example, judging the extent of compliance, personal circumstances)
- weigh the implications of the institution of therapy for the patient's quality of life and life expectancy
- determine which instructions should be given to the patient regarding therapy and its effects and side-effects
- work according to guidelines whenever possible
- execute the chosen therapy according to professional standards

The doctor has knowledge of:

- possibilities of interventions by other health professionals and social services in the area of mental, social and pastoral care
- nature and implications of alternative treatment

therapeutic consultation

The doctor is able to:

- remove unnecessary anxiety and concern
- explain findings to the patient and why further action is (or is not yet) taken

- discuss psychological and/or social causes
- speak with the patient about physical, mental and social consequences

advice, information

The doctor is able to:

- whether he is asked to do so or not, give advice and information in matters of health and sickness with respect to:
 - way of life
 - work
 - behaviour
 - nutrition
 - other relevant circumstances

pharmacotherapy

The doctor is able to:

- choose the medication (taking into account among other things the patient's age, gender and environmental factors, possible pregnancy, acceptance by the patient, contraindications, interactions, side-effects and risk of medicalization)
- choose the route of administration, dosage, dose-intervals and duration of therapy
- prepare medication for use and administer it (parenterally) should the need arise
- write out a prescription

The doctor has knowledge of:

- the principles of pharmacology
- the practical aspects of prescribing medication (including legal requirements)

acute care

The doctor is able to:

- provide basic first aid as described in Advanced Trauma Life Support (ATLS)

referral / consultation

The doctor is able to:

- refer to the right person or service both in primary and secondary care and determine the urgency
- write a letter of referral (with clear information and specific questions)
- write to other (health) professionals with a request for information
- make a request for consultation through contacts with colleagues

Evaluating the management strategy / results of treatment

The doctor is able to:

- determine how and when therapy should be evaluated and evaluate:
 - to what extent the patient's request for help has been answered
 - to what extent the intended effect has been achieved
 - whether any side-effects or complications have occurred
 - compliance
 - the patient's functioning in different, relevant domains of life
 - any deficiencies in care
- draw conclusions on the basis of the evaluation results regarding: if necessary, reconsideration of the diagnosis, re-analysis of the problem, adjustment of the management plan
- plan follow-up

5.2.9 Attending

The doctor is able to:

- ensure that communication with the patient takes place in an open and respectful manner
- explain (while continuously monitoring whether the patient understands what is said and taking into account possible prior knowledge or anxiety) about:
 - findings from history and physical examination
 - reasons, execution and risks of intended diagnostic tests, and the chances that the outcome of the diagnostic process will be a treatable condition or other information that is useful to the patient
 - findings of additional investigations

- nature of the disorder and consequences of the disorder to the patient in all domains of life
- therapeutic options with their pros and cons, execution, risks and possible side-effects
- influence of way of life and social situation
- treatment results, the expected course of the disease / disorder

- consider in making decisions:
 - the patient's personal point of view, circumstances and wishes (for incompetent patients the view of those acting on behalf of the patient)
 - the meaning of the diagnostic and therapeutic options for the patient and his environment
 - stimulating the cooperation and personal responsibility of the patient by showing respect for and stimulating the patient's ability to cope
 - the possibilities with respect to self-care, informal care and home care

The doctor has knowledge of the essentials of:

- attending to patients with a chronic or incurable disease and palliative care
- breaking bad news
- terminal care
- supporting the patient and his partner, friends and relatives, for instance after having delivered bad news

5.2.10 Reporting and making records

The doctor is able to

- record in a readable, systematic, unambiguous and testable manner:
 - the patient's request for help
 - the findings from the diagnostic process (history, physical examination, problem list, differential diagnosis and any additional investigations)
 - the therapy instituted
 - all arguments and considerations with respect to the diagnostic as well as the therapeutic process including the guidelines used and any deviations from the guidelines
 - the findings from evaluation of the treatment results
 - communications to the patient and others
 - what the patient thinks

- communicate relevant data both orally and in writing
- keep medical records, taking into account the right of access and the privacy of the patient

The doctor has knowledge of:

- the different forms of keeping records including those involving the use of information and communication technology

5.2.11 Prevention and prediction

The doctor is able to

- cooperate in monitoring individual and public health

The doctor has knowledge of:

- the individual and public health risks and the effects of preventive measures
- frequently occurring associations between environmental factors (including physical and chemical aspects such as radioactive radiation) and diseases
- forms of prevention:
 - primary prevention (for example life style)
 - secondary prevention (for example screening)
 - tertiary prevention (medical care, social-medical support and attendance)
 - epidemiological methods for the detection of health problems and threats, as well as
 - methods for detecting patients at risk, e.g. screening, periodical medical examination, case-finding, screening within the patient population of the doctor's practice, monitoring, collective prevention programmes such as screening programmes
 - the implications of genetic tests and antenatal diagnostics

5.3 KNOWLEDGE, SKILLS AND PROFESSIONAL CONDUCT SCIENTIFIC ASPECTS

For the translation of these aspects into final objectives, the following classification has been chosen:

- 5.3.1 Principles of scientific research
- 5.3.2 Meaning of the scientific approach for the actions of the doctor
- 5.3.3 Advancement and maintenance of professional competence

5.3.1. Principles of scientific research

The doctor is able to

- report, interpret and evaluate research

The doctor has knowledge of:

- the general principles of hypothesis formation, methods (including data gathering), concepts of scientific research relevant to medicine
- the fundamentals of scientific methodology, biostatistics and epidemiology
- the way of thinking in scientific research (through active participation)

5.3.2 Meaning of the scientific approach for the actions of the doctor

The doctor demonstrates:

- a critical attitude towards the scientific knowledge on which medical actions are based

The doctor is able to

- approach a health problem in a systematic way using:
 - theories on hypothesis formation and problem-solving
 - models
 - decision theories
- apply certain theorems and laws of logic to clinical and research data in order to assess their validity and usefulness

The doctor has knowledge of the scientific backgrounds of:

- the basic sciences necessary for a sound understanding of the structure (anatomy) and function of the human body

- molecular cell biology and genetics
 - endocrinology and metabolism
 - immunology and inflammation
 - growth, differentiation and ageing
- insofar as they concern the abnormalities to be studied and the connections with diagnosis and therapy

- pathology, symptomatology and diagnosis, therapy and prognosis

- preventive health care

5.3.3 Enhancement and maintenance of professional competence

responsibility for enhancing one's own professional competence

The doctor demonstrates:

- awareness of the need for continuing medical education and lifelong learning

The doctor is able to

- identify blind spots and/or gaps in his professional practice and try to eliminate them (by means of continuing medical education courses or otherwise)
- apply newly acquired insights

keep abreast of the medical literature

The doctor is able to

- find information that is of professional interest in the literature and other sources and evaluate this information and transmit it to others. This entails:
 - active search for relevant literature (for example, library information and communication technology systems)
 - making selections from the relevant professional literature and keeping abreast of the literature
 - critical reading and appraisal of the medical literature
 - reviewing te professional literature

5.4 KNOWLEDGE, SKILLS AND PROFESSIONAL CONDUCT PERSONAL ASPECTS

For the translation of the above into final objectives, the following classification has been chosen:

- 5.4.1 Doctor-patient relationship
- 5.4.2 Personal functioning
- 5.4.3 The interaction of work and private life

5.4.1 Doctor-patient relationship

The doctor demonstrates:

- an unbiased attitude towards patients, regardless of the doctor's and the patient's gender, phase of life, socio-economic status, education, ethnic background, culture, sexual preference and philosophy of life and regardless of the nature, prognosis and stage of the patient's health problem or disability
- that he aims to establish a doctor-patient relationship which is as equitable as possible
- attention to the manner in which the patient copes with his complaint(s) and the meaning the patient attributes to his disease
- understanding for the patient's situation (also in unusual circumstances) and his social background. He shows his personal interest in the patient and his environment and is aware of possible consequences of disease for the patient's family and social environment (including working environment). He is mindful of the patient's personal circumstances in examination, advice, treatment, and attendance
- awareness of the dependent position of the patient

The doctor is able to:

- cope with his personal feelings, inhibitions, standards and values, with respect to certain feelings evoked by contact with a patient (or someone in the close vicinity of the patient) such as erotic feelings, irritation, aversion, shame
- cope with the patient's feelings towards him
- listen to the wishes and complaints of the patient, be receptive to the patient's needs, expectations, standards and values, and take these into consideration in examination, advice, treatment and attendance

- be tactful and empathetic in giving information and use words that the patient can understand
- ask for help if communication is difficult because the patient 's command of the Dutch language is inadequate
- maintain a functional relationship with the patient, even if the patient rejects indicated diagnostic investigations or treatment
- detect feelings of dissatisfaction in the patient and/or himself with respect to the doctor-patient relationship and facilitate discussion of such feelings. He can react adequately, if the relationship is (or threatens to become) disturbed or if there is a danger of too much intimacy. When adequate reaction is no longer possible, he seeks help himself.

5.4.2 Personal functioning

with respect to personal qualities

The doctor demonstrates awareness that in order to function as a doctor he must:

- be able to cope with uncertainty
- be able to cope with acute situations
- be able to cope with stress
- be able to carry responsibility
- recognize his own limitations
- be able to cope with feelings of impotence
- be ready to take decisions including the decision to do nothing
- be flexible and able to cope with rapidly changing situations
- preserve his financial independence in relation to third parties

with respect to medical actions

The doctor demonstrates awareness that in order to function as a doctor he must:

- be able to assess the limits and possibilities of a given situation, of personal practice as well as of the medical profession in general

- be able to cope with his own and other people's errors, not be afraid to admit mistakes to patients and colleagues and be able to learn from them
- be able to cope with complications arising from clinical actions
- be able to strike a balance between too much and too little medical intervention and be aware of the risks of medicalisation and undertreatment
- be prepared to dedicate himself to and share the responsibility for the physical, mental and social well-being of persons and for all forms of health care
- feel responsible for his own continuing education and take initiatives in this respect
- recognize personal feelings, standards and values in relation to existential questions on life, death, disease and health, and be able to deal with medical ethical issues
- respect the need for doctor patient confidentiality
- be able to distinguish between medical actions in the professional and private domain

with respect to teamwork:

The doctor demonstrates awareness that in order to function as a doctor he must:

- be able to function in a group
- be able to fulfil different roles within the team
- be prepared to have his medical work assessed/tested by others and be able to judge the medical work of others
- be able to cope with positive and negative criticism
- be prepared to seek the opinions of others at the appropriate time
- apply skills with respect to information, negotiation, leadership and medical audit
- build relationships with colleagues in which he:
 - is open to cooperation
 - accepts the expertise of others
 - is able to combine his personal input and that of others in his actions.

- be able to define his own tasks in relation to those of other medical disciplines as well as nurses and other health care professionals

5.4.3 Interaction of work and private life

The doctor is able to:

- recognize and appraise any disturbances in the balance between work and private life
- take action to redress the problem, including seeking professional help

5.5 KNOWLEDGE, SKILLS AND PROFESSIONAL CONDUCT: ASPECTS RELATED TO SOCIETY AND THE HEALTH CARE SYSTEM

For the translation of the above into final objectives, the following classification has been chosen:

- 5.5.1 Public Health
- 5.5.2 Medical ethics
- 5.5.3 Legal aspects of health care and medical practice

5.5.1 Public health and health care*

The doctor is able to:

- make an adequate contribution to the continuity of care for the patient

The doctor has knowledge of and insight into:

- public health:
 - prevalence of disease, disability and mortality and how they are spread across the population
 - determinants of public health including demographic, cultural, social and economic factors
 - the importance of prevention of chronic incapacity for work and maintenance of ability to work
- health care:
 - determinants, nature and extent of medical consumption
 - how health care affects public health
 - structure and organization of health care including:
 - characteristics and differences of Dutch health care versus other health care systems in Europe and the rest of the world
 - health care facilities: institutions and professionals
 - costs and financing of health care, including the social security system and health insurance
 - systems of remuneration and the financial aspects of setting up and maintaining practice
- his place in the health care system and his function as a role model
- how the quality of health care is monitored, advanced and assured

* In acknowledgement of Professor P.J.van der Maas

- the various patients' associations and self-help groups and their roles in public health and health care
- expected developments in public health and health care, including demand for care, access to care and costs
- the organization of multiprofessional care
- registries and sources of public health data and the significance of information technology for health care

5.5.2 Medical ethics*

The doctor demonstrates:

- awareness of diverging moral opinions and respect for different opinions and convictions

The doctor is able to:

- identify ethical aspects of medical decisions and analyse moral issues arising as a result of medical actions
- use arguments to explain his moral views and justify them to patients and colleagues

The doctor has knowledge of:

- general philosophical issues in medicine: health and disease, suffering and death
- general principles of ethics: view of humanity, world view and philosophy of life
- general issues related to ethics: what is a moral problem, ethics and rationality, ethics and interculturalization, the relation between ethics and the law
- the influence of scientific developments on standards and values
- prevailing medical ethical views in the Netherlands
- issues related to treatment at all stages of life: whether or not to treat, the purpose of treatment, the type of treatment or care, the necessity to make choices (shortage)
- ethics and medical scientific research

* In acknowledgement of Professor H.A.M..J. ten Have

5.5.3 Legal aspects of health care and medical practice*

The doctor is able to:

- deal with the legal aspects of the health care system

The doctor has general knowledge of and insight into the:

- basis and principles of health law
- legal aspects of the doctor-patient relationship (in general and in specific situations)
- professional confidentiality and protection of privacy
- legal regulations concerning the interests of third parties
- other legal aspects inherent in medical practice with respect to appropriate care for and protection of the patient
- legal issues regarding the beginning and end of life
- criminal, disciplinary and civil liability
- legal aspects of new technologies
- legal aspects of problems related to shortages
- legal aspects of the relationships within the health care system and in relation to those who finance health care
- legal aspects of scientific research on humans
- legal aspects of establishing natural and unnatural causes of death (or the suspicion of this)

* In acknowledgement of Professor F.C.B.van Wijmen

- legal aspects of organ and tissue donation.

6. BLUEPRINT 2001: PROBLEMS AS STARTING POINTS FOR TRAINING

6.1 EXPLANATION

In Blueprint 2001, as in Blueprint 1994, one of the basic principles is learning the method a doctor uses in trying to resolve the health problems presented by patients. This is also called the 'medical process'. In the general objectives this process is explained in greater detail. Contentwise, the central position of the medical process is exemplified by the list of final objectives with problems as starting points for training.

In medical practice, the starting point of the medical process is usually the complaint or the problem with which the patient presents at the doctor's office. The doctor starts by gathering data from history, physical examination and any appropriate additional investigations. These data are used, in combination with other characteristics of the patient, to analyse the problem. In Public Health the process is comparable. The starting point may be the results of a screening test or a request by a third party, it may concern more than one person, as is the case in collective preventive care. A 'patient' can also be a healthy person, in which case the doctor will take the initiative. However, the process of problem analysis plays a part in every medical discipline.

It is not easy to define the word 'problem' unambiguously and conclusively. The word 'problem' denotes a complex of complaints, disorders, signs and symptoms that were reason for the patient to consult a doctor. In Blueprint 1994, the definition of a 'problem' was broadened to include data from history, physical examination or (occasionally) additional investigations that are important for medical education. Sometimes, even the diagnosis offered by the patient, such as 'hyperventilation', may be regarded as a 'problem'. This entire complex is what is meant by 'problems as a starting points for training.' In Blueprint 2001 this principle is applied even more strictly. In Blueprint 1994 the list of problems contained a limited number of 'doctor' problems. When possible these were reformulated as patient problems: e.g. 'infertility' was rephrased as 'involuntary childlessness'. A problem such as 'hypertension' was left out, because the patient does not present with this problem. It is revealed after examination and is, in fact, a secondary finding.

In Blueprint 2001 the arrangement by regions – which also underlies the list of problems in Blueprint 1994 - has been made visible. Where possible, the problems are described in non-medical terms. In some cases, the medical terminology was added, because medical terms are easier to look up in the literature.

With the list of problems as starting points for training, the importance of the process of clinical reasoning and acting is stressed. The list of problems gives an overview of the problems every doctor must have encountered in the undergraduate medical curriculum (or which serve as a basis for medical educational design) and should be able to handle correctly. 'Correct handling' can also mean *not* taking action but referring the patient to the appropriate person. It is also important that factors like age, gender and

cultural background are taken into account in addressing problems, because they sometimes require a specific approach.

6.2 LIST OF PROBLEMS

General

pain, general, not specified
loss of blood
overweight/feeling too fat
loss of weight, emaciation
loss of appetite
eating disorders
fatigue
general feeling of illness
fever
shivering with cold
abnormal perspiration
thirst
excessive drinking
flushing
enlarged lymph nodes, general and local
poor endurance
food intolerance
nausea
increased risk (positive result of screening programme)
request for preventive examination
request for information
indication of ill-treatment
handicaps and restrictions
sudden death

Skin

altered colour of skin/mucous membranes
paleness
blueness
jaundice
local redness
generalised redness
inflammation of skin
skin eruptions
atrophy of skin
fatty skin
light sensitivity
itching
increased bleeding tendency
sting of insect

burning and freezing
wounds
sore
mole
excess hair
lack of hair
abnormalities of the nails

Head

General

headache/facial ache
heavy feeling in the head
lack of/diminished facial movement

Eye

eye pain (burning, sense of sand, foreign body)
itching eye
trembling eyelid
red eye
watering eye
eye obscured by pus or mucus
alteration of form or appearance of eye, eyelid or peri-ocular area
nystagmus
proliferation of vessels in cornea
unequal pupils
dilated pupils
constricted pupils
protruding eye
hollow eye
trauma to the eye
loss of vision
squint
temporary blindness
loss of visual field
night-blindness
floating objects in the eye
light flashes
double vision
shunning the light

Ear

ear ache

itching of ear
discharge from ear
abnormalities of external auricle
deafness/loss of hearing
ringing in the ears

Nose and paranasal sinuses

bleeding nose
abnormalities of nostrils
nasal obstruction
nasal discharge
sneezing
snoring
diminished/lack of sense of smell

Mouth and throat, neck

lockjaw
swelling of neck
neck pain
swelling of armpit

abnormalities of lip, tongue, mouth
increased secretion of saliva
dry mouth
disorders of taste
bad breath

toothache
problems with dentures

throat complaints
hoarseness
alteration of voice
swallow problems
disorder of food passage
swallowed foreign body
experience of globus

Chest

cough
coughing up mucus/blood
wheezing
tightness of the chest

shortness of breath
hyperventilation
pain with respiration

chest pain
crushing chest pain
epigastric pain
palpitations
arrhythmias

Breasts

sense of weight/pain/tension
change in size/outline/symmetry
retraction of skin/nipple
nipple discharge, including galactorrhoea
eczema of nipple/areola
lump in breast
gynaecomastia

Abdomen

General

bloated abdomen/swollen sensation
abdominal pain
swelling in abdomen
loin pain
colic pain
regurgitate/belch of undigested food (regurgitation, rumination)
vomiting
hypersecretion of saliva due to peptic ulcer
belching

hiccup
heartburn
post-prandial pain

flatulence
diarrhoea
altered colour of faeces
blood, mucus or pus in faeces
alteration of defecation pattern

Groin

swelling in groins

Anal area

false sensation of the need to defecate

painful defecation

faecal incontinence

itching anus

pain in rectum/anus

piles

anal blood loss

Urinary tract and genital organs

General

painful micturition

hesitancy

dribbling

frequent micturition

increased micturition at night

retention of urine

polyuria

urinary incontinence

red-deep-red/brown urine

spontaneous passage of urinary stones

Male

pain in scrotum

abnormal swelling of scrotum

impalpable testes

urethral discharge

anomaly of male external genitalia

bloody sperm

Female

vaginal symptoms

sensation of fullness in vagina

genital discharge

anomaly of female external genitalia

delayed menarche

premature menarche

premenstrual complaints

disorders of menstruation and menstrual cycle

midcycle pain

intermenstrual bleeding
premature menopause
complaints related to the climacteric
postmenopausal bleeding
contact bleeding

Locomotor system

enlarged hands and feet
bone, joint pain with or without radiation
fractures
pain in the back
multiple joint complaints
swelling of joint(s)
soft tissue bruising
joint stiffness
abnormalities of joints
painful joints during motion
morning stiffness
limited range of motion, local/generalized
muscular ache
decrease of muscular tissue
pain felt in the leg on exercise
oedema of legs/ankle
varicose veins
leg ulcers
abnormality of the foot

Nervous system

dizziness/vertigo
loss of consciousness/change of consciousness/blackout
(repeated) drop attacks
absences
twitch, epileptic fit, convulsion, seizure
aura
tingling
change of sense of touch in the skin
abnormal involuntary movements
tremble, tremors
motor restlessness
disorder in motor tempo and automatism
motionless, stupor
difficulty in coordinating movements
bizarre muscle movements

muscular spasm, muscular vibrations
tics
increased muscle tone
loss of strength, reduced strength
disorder of mobility
palsy
abnormal posture
walking problems
restless legs
disorder of speech or language
problems with reading

Psychological functioning

change in behaviour/personality
loss of decorum
impulsive behaviour
chronic complaining
simulation behaviour
obsessive-compulsive symptoms
loss of initiative and interest
change in emotions and moods
depressive feelings
aggressive behaviour towards oneself, e.g. suicide attempts and self-mutilation
aggressive behaviour towards others
anxious, nervous, tense
agitation.
acute stress
transient situation-related tension
confusion
forgetfulness, disorders of memory
not being able to take care of oneself (washing, dressing, eating and general daily functions)
self neglect
disorientation in time and/or place and/or person
disorder in sensation of oneself, the body or the environment
disorder of judgement and critical faculty
decrease of intellectual functions
disorder of thought (form and contents)
disorder of communication
disorder of attention and concentration
sleep-wake cycle disturbances
nocturnal restlessness
reversal of day/night rhythm
signs of ill-treatment

Sexual functioning

disorder of development of secondary sex characteristics
precocious puberty, delayed puberty
sexual problems: preference, longing, behaviour, experience
painful coitus
potency disorders
signs of sexual abuse
assault, rape

Reproduction

contraception
desire for sterilization
involuntary childlessness
wish for child after sterilization
risk factors in pregnancy, pre-existing disease and desire for pregnancy
request for genetic counselling
pregnant woman with abnormal previous obstetric history
unwanted pregnancy
symptoms due to pregnancy
fever during pregnancy
abdominal pain during pregnancy
vaginal blood loss during pregnancy
fluid retention during pregnancy
lack of foetal movement
loss of amniotic fluid
premature labour

The young child

abnormal birth weight
problems with breast feeding
poor bonding
suspected hereditary/congenital affection
abnormal appearance
indistinct sex
irritable/crying infant
nappy rash
infant in pain
aberrant growth of skull
failure to thrive
unwilling to eat/drink
motor/mental retardation, developmental delay
temporary interruption of development

short stature
acute life-threatening incident

Social-psychological problems (relevant to medical action)

uncooperation with medical treatment/non-compliance
dysfunctional medical care, e.g. overprescribing, medical shopping, sexual relationship with patient
anxiety about side-effects of drugs
hazardous behaviour
problems in relationship parents/partner/child
problems with bringing-up, behavioural disturbances in child
problems at school, learning disorders
problems with illness
problems in different periods of life
increased need for care
insufficient care system
end-stage problems in terminal disease
loss/death of someone close
social isolation
problems with loneliness
financial problems of patient
accommodation problems/problems in neighbourhood
social-cultural problems/migration problems
use of tobacco
chronic use of alcohol
(ab)use of (soft/hard) drugs
health problems because of environmental conditions
problems at work concerning work conditions
absenteeism/non-attendance (school/work)
unemployment
aesthetic problems with appearance (nose, ears, breasts, etc.)
parental fear of serious disease in child
fear of venereal disease
fear of cancer or other serious disease
fear of contamination

Problems resulting from medical action

complication of medical treatment
post traumatic problems
post operative problems
dependence on drugs
multiple drug administration
abuse of medicines

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