



Agència
per a la Qualitat
del Sistema Universitari
de **Catalunya**

Professional competences of graduates of medical schools in Catalonia

DISSENY programme medicine workgroup
UB, UAB, UdL and URV



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Report drawn up by the working party made up by:

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Index

Presentation	3
AQU Catalunya and the DISSENY programme	5
The new context: the European Area of Higher Education. Definition of requisite competences for the professional qualification profile	7
Undergraduate training as the basic medical training and qualification for professional practice	10
Professional qualification profile of graduates of medical schools in Catalonia	13
Essential competences for graduates of medical schools in Catalonia	16
Bibliography	25

Presentation

As a result of the conclusions of the *White paper on the medical professions* produced and published by the Autonomous Government of Catalonia's Department of Health and Social Security, in which it was underlined that previously established objectives and contents of the curricula of the health care professions were not sufficiently in line with the population's needs, expectations and demands, an agreement was signed in 2003 between the Catalan Ministry of Universities, Research and the Information Society (*Departament d'Universitats, Recerca i Societat de la Informació*), the Department of Health and Social Security (*Departament de Sanitat i Seguretat Social*), the Institute of Health Studies (*Institut d'Estudis de la Salut*) and AQU Catalunya in order to instigate a process of change and modernisation in training in the field of the Health Sciences.

The changes outlined in the white paper in short recommend that efforts are made to newly define the training objectives and in particular the requisite standards of competence of graduates and diploma holders. It is at the same time essential and natural for this process to go hand in hand with the development and implementing of new evaluative methodologies that allow for levels of achievement in defined competences to be determined.

This is the context within which a programme to improve the quality of design of training programmes is being sponsored by AQU Catalunya, with Medicine being the first degree course to be included.

The following report is the result of the joint work of the Schools of Medicine at the UB, UAB, UdL and URV universities and AQU Catalunya to define the essential competences of graduates from medical schools. As such, it is the response to the necessity to identify the training profile and requisite competences and also serves as the basis for a new definition of training objectives at the medical school (or faculty) scale and for redesigning the systems of assessment and certification of undergraduate students.

Furthermore, it allows for the possibility of this work being incorporated, once it has been duly adapted, into other fields of medical training and represents a noteworthy element in the process of adaptation of university education to the EAHE.

Gemma Rauret Dalmau
Director, AQU Catalunya

AQU Catalunya and the DISSENY programme

The promoting and assuring of quality in the Catalan universities lies with the universities themselves and the corresponding department of the Autonomous Government of Catalonia that deals with the universities. Pursuant to this perspective, the Catalan Universities Law (*Llei d'Universitats de Catalunya, LUC*) establishes AQU Catalunya as the main instrument for quality promotion and assurance.

While the cornerstone of the work carried out by AQU Catalunya is course assessment (of resources and abilities as well as teaching development and results obtained), it is important to point out that good planning and coherent objectives also play an important role with regard to quality.

The DISSENY programme has been set up by AQU Catalunya as part of its function to undertake studies for the improving and innovation of assessment, certification and accreditation models and also in accordance with the process of European convergence. The programme covers the three very different fields of Medicine, Psychology and the short and long study cycles of Chemical Engineering and includes all of the universities that offer these disciplines.

This report deals with the competences of graduates from medical schools and has the objective of assuring the coherency of training objectives. Deployment of the actual DISSENY programme follows the three stages below:

1. Developing of a design methodology for new syllabi that takes account of graduate profile and competences.
2. Application of this methodology for the designing of new syllabi in accordance with the criteria laid down by the process of European convergence.
3. Functional analysis of the methodology and results obtained.

Although accreditation is not anticipated in the short term, this new architecture for designing new syllabi will clearly need to be included in subsequent stages orientated more towards this type of process.

The new context: the European Area of Higher Education. Definition of requisite competences for the professional qualification profile

Definitions of the new European Area of Higher Education, including that given in the results of the Tuning project¹, put special emphasis on the need to establish curricula convergence mechanisms that provide for the comparability and coherence of training and thereby true equivalence of qualifications issued by different training institutions in the countries of the European Union. Aside from the setting up of a common qualifications structure, there are multiple convergence mechanisms that extend from a new definition of learning time according to its repercussion on the student to the approach of a basic common profile of graduates defined by demonstrated professional competences. In the case of Catalonia, these factors appear in the Catalan Universities Law (LUC) and the ministerial decrees that expand on the LOU (the Spanish *Ley Orgánica de Universidades*) that establish the general framework of teaching planning.

¹ *Tuning educational structures in Europe* is a pilot project supported by the European Commission within the framework of the Socrates programme, the aim of which is to achieve the objectives of the Bologna Declaration. Academic staff, students, and employers were consulted in phase one of the project (2000-2002), in which over 100 institutions were involved, in order to identify the generic and specific competences required of graduates in different degree courses and to serve as points of reference for curriculum design and corresponding methods of evaluation. Furthermore, the function of ECTS (*European Credit Transfer System*) as a credit accumulation system has also been studied.

This process of European convergence, which should be completed in principle by 2010, represents the most important salutary lesson in university planning for decades in that it compels the formulation of a teaching paradigm centred on the objectives and results of the learning process based on a rationale adapted to the needs of knowledge, technology and current ideology at the beginning of the new millennium.

The profundity of change has induced the setting up of programmes by the different areas of educational administration to facilitate a coherent and harmonious response by institutions to the demands of the new regulatory framework. The AQU Catalunya DISSENY programme, which co-ordinates the work of all four schools (faculties) of medicine in Catalonia within one joint planning framework adapted to this new context, is one such programme made available to the universities in Catalonia.

One of the innovative aspects of this new planning framework is the necessary description, and recognition in legislation, of the professional competences associated with the Degree in Medicine, defined on the basis of the corresponding professional profile. These competences will need to be used as the basic element for orientating the construction of the training programme and determining the content, with no prejudgement of possible teaching strategies and methodologies.

The concept of professional competence, defined as the ability to correctly resolve problems and to carry out tasks occurring in professional work, is only consolidated at a low level in university education culture in Spain. At the international level, however, the achievement of professional competence and its educational translation into transferable competences is already very widespread.

The comprehensive definition of all competences involved in the practice of a profession is a very complex task as the competent undertaking of a professional activity entails knowledge such as elements of judgement and evaluation, communication and relationship skills, technical skills, personal attitudes and values upheld by the corresponding professional body itself. Without these elements, it is difficult to achieve an overall construct of professional competence.

The need to define the contents of training in line with incorporation into a professional body is essential in a career like medicine for qualification entitles one to carry out a series of activities prohibited to persons not in possession of the qualification. Furthermore, it serves as the starting point for a professional career with higher levels of competence that are defined by names/acronyms added to the original qualification, where new competences will need to be defined and added to the basic ones.

Moreover, the defining of competences represents an objective response to the right of society and those providing health care services to know what is to be expected of a professional with an official qualification. It is also an essential tool for establishing the basis for organising post-graduate training programmes in terms of including new competences and of reinforcing or modifying those acquired in the passage of time.

It also represents a commitment on the part of the teaching institution to the student who can thereby know what the professional profile actually is and to consciously and reasonably come to terms with the necessary learning activities in order to receive the qualification.

In this context, it should be noted that there have been fundamental changes in the objectives of undergraduate medical training in recent years. Graduate physicians –in Catalonia, requiring a degree in Medicine and Surgery– have customarily required a training that enabled them to immediately carry out general practice as well as to start postgraduate training leading to a specialised medical qualification. Increasing weight has been given recently however to the idea that undergraduate training is insufficient for the appropriate general practice of medicine, which has become a speciality in a growing number of countries.

Undergraduate training as the basic medical training and qualification for professional practice

In view of increasing graduate mobility, graduate medical training has come to be regulated within the scope of the European Union. In 1979, the Advisory Committee for the Training of Physicians concluded that basic medical training was insufficient for appropriate general practice and recommended the development of specific programmes for the training of general practitioners.² Pursuant to this recommendation, various directives of the EC Council in 1986 and 1993³ laid down that each member state had to establish specific training for general practice as a way of completing basic medical training and it was established that possession of this specific training was necessary from 1995 onwards in order to carry out the activities of general practice in medicine in a public health system. In 2001, a new directive⁴ laid down that “knowledge of the

² Report III/D/697/3/79.

³ Directives 86/457/EEC and 93/16/EEC.

⁴ Directive 2001/19/EEC.

general practice of medicine must be acquired during the period of basic medical training”. This term has been replaced however by “appropriate knowledge of basic medicine” in the recent unitary directive proposal.⁵

In 1992 the Advisory Committee made a non-regulatory recommendation⁶ that school of Medicine undergraduate training programmes be designed in order for graduates of medical schools to acquire the necessary level of knowledge, techniques and attitude to actively participate in caring for and treating patients under the guidance of supervision. In accordance with this recommendation, a degree in Medicine qualification would entitle the holder to carry out an additional period of clinical activity “under supervision” (internment) that would authorise practice as an independent professional.

A Specialist Physician qualification (*Médico Especialista*), obtained through Specialised Medical Training activities, is required in Spain in order to use the term specialist physician and to professionally practice as such.⁷ Moreover, in accordance with Community regulations, a qualification as Specialist Physician in Family and Community Medicine is necessary for a position as general practitioner of Medicine in health care centres and services in the national health system.⁸ Nevertheless, medical schools (faculties) confer the qualification of Degree in Medicine, which permits unrestricted professional practice without use of the term specialist physician.

As a result of the professional competences currently attributed to the graduates of medical schools by state legislation, undergraduate training must thereby guarantee the acquiring of the essential knowledge, skills and attitudes for both incorporation into supervised medical practice involving postgraduate training in the various specialised fields of medicine and the correct development of unrestricted professional practice at the levels envisaged by the law. However, the prevailing

⁵ Directive proposal COM (2002) 119 end.

⁶ Report III/F/5127/3/92-ES.

⁷ Royal decree 127/1984 of 11 January.

⁸ In the case of physicians graduating prior to 1 January 1995, certification accrediting qualification as a general practitioner (GP) (Royal decree 853/1993 of 4 June).

regulation on the official qualification of Degree in Medicine and the particular corresponding general directives on syllabi⁹ have already established that the objective of degree training is to provide “the series of theoretical knowledge and clinical abilities required by all physicians, regardless of subsequent professional training”.

⁹ Royal decree 1417/1990 of 26 October.

Professional qualification profile of graduates of medical schools in Catalonia

The report on standards for the basic competences of graduates of medical schools, submitted to review by the schools (faculties) of medicine and other significant institutions and agents involved in graduate medical training, is the result of the work by the DISSENY programme workgroup in Medicine¹⁰ sponsored by AQU Catalunya, which also involved the participation of representatives from all of the schools of medicine in Catalonia. The objective, once the research has been completed, the report discussed and possible contributions incorporated, is for the proposed profile to become the basic and compulsory point of referral in all proposals for training in each faculty.

As health care providers, graduates of medical schools will need to respond to numerous challenges arising from their work in a health system that faces increasing demands as well as the need for efficacy and efficiency. The roles and functions of the professional in medicine not

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only require his/her training as an expert physician but also the need for his/her development as a communicator, manager and defender of the community's "state of health". Fast development of knowledge and the need to provide quality services call for a commitment to continuous learning and professional conduct from graduates of schools of medicine. It is for this reason that the workgroup fully accepts the general and transversal competences common to all university courses as defined by the Tuning project.

With regard to the specific competences of the Degree in Medicine, the given profile structure is based on the Institute for International Medical Education proposal in the *Global Minimum Essential Requirements report*. This report has been adapted as a consequence of:

- a) Adapting of the structure and terminology of the original text to the translation into Catalan.
- b) Consideration of the work on the proposals for competences carried out by the faculties of medicine in Barcelona and Lleida.
- c) Consideration of various peculiarities of the Catalan system.
- d) The considerations of the workgroup following extensive consultation of different reports.¹¹

This must serve as the basis on which each school of medicine establishes the procedure for drawing up its own specific report on competences, with consideration at the same time of the following points:

- a) Seek the maximum involvement of teaching staff and students.
- b) Clearly indicate that the proposed competences are non-exclusive to profiles including other additional competences considered to be convenient by each medical school.

¹¹ See end of report.

The workgroup is to prepare, in a later phase, a general proposal for developing the following stages of the DISSENY programme, and will define the curricular content in the form of learning objectives and establish the corresponding evaluation procedures, with special attention being given to the evaluation strategies that will need to be adopted to certify achievement of the competences specified in the training profile.

Essential competences for graduates of medical schools in Catalonia

I. Professional values, attitudes, conduct and ethics

Professionalism and ethical conduct are essential in medical practice. Professionalism includes not only knowledge of medicine and skills but also the commitment to a series of shared values, autonomy to establish these values and have them respected, and the responsibility to defend them. Graduates of medical schools must demonstrate:

1. Recognition of the essential elements of the medical profession, including the moral and ethical principles and underlying legal responsibilities of the profession.
2. Professional values that include excellence, altruism, the sense of duty, compassion, empathy, responsibility, honesty, integrity and a commitment to scientific methods.
3. Taking responsibility for one's personal development and the upholding of professional competence.

4. Understanding of the fact that every physician is under the obligation to promote, protect and improve these elements for the benefit of patients, the profession and society in general.
5. Recognition that good medical practice depends on the mutual understanding and relationship between the physician, patient, family and community, and also of the respect for the patient's wellbeing, cultural diversity, beliefs and autonomy.
6. The ability to apply the principles of moral reasoning and decision-making in conflicts with and between ethical, legal and professional elements, including those due to economic restrictions, the marketing of health cures and scientific advances.
7. Self-assessment and recognition of the need for on-going personal improvement and awareness of one own limitations, especially those referring to medical knowledge.
8. Respect for all health care professionals and the ability to develop a positive relationship and one of collaboration with them.
9. Acknowledgement of the obligation to treat the terminally ill, including symptom attenuation.
10. Acknowledgement of the ethical, legal and technical aspects of the patient's documentation, plagiarism, confidentiality and copyright.
11. Skill to effectively plan and manage one's own time and activities in order to deal with doubt and the ability to adapt to change.
12. Personal responsibility for the care of patients.
13. Contribution to the progress of Medicine, with a permanent attitude of research incorporated into clinical activity.

II. Scientific fundamentals of medicine

Graduates must possess the required knowledge of solid scientific fundamentals of medicine and be capable of applying this knowledge to resolve medical problems. They must understand the principles that guide both decision-making and medical actions, and be capable of adapting to the changes that occur with the passage of time and variations within the context of their practice. To achieve these results, the graduate must demonstrate a knowledge and understanding of:

1. The normal structure and function of the human body as a complex adaptive biological and psychosocial system.
2. Abnormalities in the structure of the body and its functions displayed during illness.
3. Normal and abnormal human behaviour.
4. Factors that are health determinants and health risks, and the interaction between the individual and the physical and social environment.
5. Mechanisms that maintain the homeostasis of the human body, at the molecular, cellular and organic scales.
6. The human life cycle and the effects of growth, development and ageing on the individual, family and community.
7. Aetiology and the natural history of acute and chronic illnesses in individuals and populations.
8. Epidemiology, health economics and management.
9. The principles of the action of medications and their use and efficacy.
10. Pharmacological, surgical, psychological, social and other forms of intervention that are relevant in both acute and chronic illnesses, rehabilitation and the treatment of terminal illnesses, including evaluation of their efficacy.

11. Response of the organism to external and internal stimuli, and injury, response and repair mechanisms.
12. Factors determining the development of behaviour and the genetic, experiential and environmental factors determining individual variation, including the differences in vulnerability to alterations of mental health.
13. The process of acquiring beliefs, values, attitudes, and individual and group awareness.

III. Communication skills

The physician must create an environment in which a process of mutual learning takes place with and between the patient, their family, the members of the health care teams and professional colleagues and also the public through efficient communication. To increase the probability of appropriate medical decision-making and, at the same time, patient satisfaction, graduates must be capable of:

1. Listening attentively to obtain and summarise relevant information on all problems and understand content.
2. Apply communication skills to facilitate understanding between the patient and his/her family, enable them to make decisions and to guarantee prescription compliance.
3. Communicate with members of the professional and academic community, and also with other sectors and the media.
4. Interact with other professionals involved in treating the patient through effective teamwork.
5. Demonstrate basic skills and positive attitudes with regard to teaching and mutual learning.
6. Demonstrate sensitivity towards cultural and personal factors that improve interactions with patients and the community.

7. Communicate effectively both orally and in writing, taking into consideration the diversity and limitations that may interfere with communication.
8. Prepare and keep medical reports appropriate to protocols and the need for information.
9. Summarise and present appropriate information in accordance with the needs of the audience and discuss attainable and acceptable plans of action concerning matters that are of priority to the individual and the community.

IV. Clinical skills

Graduates must efficiently and effectively diagnose and manage the care of patients. In order to do this, they must be capable of:

1. Identifying the health problems shown by individuals, families, and communities.
2. Identify any necessary additional information to better understand these problems.
3. Recognise life-threatening situations requiring immediate action, manage them and treat the most common forms of health emergency.
4. Prepare an anamnesis in an appropriate way, including psychological and social aspects.
5. Carry out a complete physical and mental examination.
6. Apply basic diagnostic techniques and procedures and analyse and interpret the results in order to establish more precisely the nature of problems.
7. Identify the causal and associated factors of problems and know how they determine symptomatology.

8. Evaluate the severity of health problems and their effects on the individual, family and community, and give professional advice considering the physical, psychological, social and cultural factors.
9. Evaluate, through use of the best evidence available, which diagnostic and therapeutic measures can be taken to treat and prevent problems, who must develop them, and when and how.
10. Make appropriate use of human resources, diagnostic actions, therapeutic modalities and health care facilities in the evaluation of costs to the individual, family and community, and the difficulties and problems to be overcome.
11. Take care of patients, the family and the community in an efficient and effective way in accordance with deontological principles, with special emphasis on promoting health and the prevention of illness, as part of a multidisciplinary team.

V. The health of the population and health systems

Graduates of medical schools must understand their role in protecting and promoting the health of the entire population and know how to take appropriate action. They must understand the organisational principles of health systems in all fields of care and their determinants, including economic and legal aspects. They must also have a basic understanding of how the health system is managed with efficacy and efficiency. Graduates must therefore be capable of demonstrating:

1. Knowledge of the determinants of health and illness affecting a population as a whole, including those arising from lifestyle, genetics and the environment, as well as from social, demographic, economic, psychological and cultural factors.

2. Knowledge of their role and competence to undertake appropriate actions to prevent illness, injury and accidents and for the protection, upkeep and promoting of health in the individual, the family and community.
3. Knowledge of the state of health on the international scale, of global trends in morbidity and mortality of socially important chronic illnesses, of the impact of migration, commerce and environmental factors in health, and of the role of international health organisations.
4. Acceptance of the functions and responsibilities of other health professionals and those associated with the field of health care providing health care treatment to individuals, populations and communities.
5. Understanding of the need for collective responsibility in health promotion interventions requiring agreement of the population being served, and a multidisciplinary vision that includes the different health professionals and intersectorial collaboration.
6. Understanding of the basics of health systems, including politics, organisation, financing, medical cost-containment measures and principles of effective health care management.
7. Understanding of the factors determining equity in access to health treatment and its efficacy and quality.
8. The use of national, regional and local data on health vigilance and also demography and epidemiology in the health care decision-making process.
9. Willingness to assume leadership when necessary and appropriate in health matters and to motivate people to have ideas, answer official proposals and suggest alternatives where appropriate.

VI. The use of information

Medical practice and health system management depend on the effective flow of knowledge and information. Advances in computer and communications technology are powerful tools for both education and information analysis and management. Graduates must therefore understand the possibilities and limitations of information and knowledge management, and be capable of using them to resolve medical problems and in decision-making. The graduate must therefore be capable of:

1. Searching for, obtaining, organising and interpreting scientific and health information in databases and different forms of data source.
2. Retrieve specific information on a patient from a clinical data system.
3. Use ICT as an aid in diagnosis, in the use of preventive and therapeutic measures, in health vigilance and control of the state of health and also in research and life-long training
4. Understand the applications and limitations of information technology.
5. Keep records of their practice for analysis and improvement.
6. Design and use a database system for research and to assure life-long training.

VII. Critical thinking and research

The ability to critically evaluate existing knowledge, technology and information is necessary to resolve problems. Physicians must continuously acquire new scientific information and skills and stay competent in them. Good medical practice requires the capability of scientific thinking and the use of scientific methods as the basis for medical practice. Graduates of medical schools must therefore be capable of:

1. Demonstrating an approach that is critical, constructively sceptical, creative and research-orientated in professional activities.
2. Understanding the power and limitations of scientific method, including precision and the validity of scientific information in establishing the causes, the treatment and prevention of illness.
3. Using personal criteria to analytically and critically solve analytical and critical problems, and endeavouring to proactively search for information.
4. Act in accordance with scientific and research methodology and with medicine based on the evidence.
5. Understand the role of complexity, uncertainty and probability in the decision-making process in medical practice.
6. Formulate hypotheses and obtain and critically evaluate data in problem solving.

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