

THE EMPLOYABILITY AND COMPETENCES OF MEDICAL INTERNS

THE PERCEPTIONS OF HEADS OF HOSPITAL
SERVICES AND THOSE IN EQUIVALENT
POSITIONS REGARDING MEDICAL INTERNS

**Main results and findings of the 2015 study on hospitals
and other health facilities**



Agència
per a la Qualitat
del Sistema Universitari
de Catalunya





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EXECUTIVE SUMMARY

Aim of the study

The aim of the study was to establish what competences and skills are required by early-stage professionals in medicine. As every medical graduate in general must spend a period of between four to five years as a medical intern (also known as a house officer, resident or physician in training, but hereinafter "medical intern"), an analysis was carried out of the skills and competences required during this initial period of a professional career in medicine.

The study complements the findings of the employment outcomes survey of medical school graduates, and also the qualitative results of a focus group made up of heads of the various types of public and private medical facilities in Catalonia. The ultimate objective is to enhance the match between the training requirements of the profession and medical training offered by HEIs in Catalonia.

Population and sample

- The sample consisted of 90 responses from the heads of hospital services (73%), primary health care facilities (24%) and other centres (3%). All survey activities were carried out on line.
- The study also includes the results of the employment outcomes survey carried out in 2014, in which 296 medical school graduates were surveyed six years after graduation: 96% of these graduates were in employment, 2% were looking for a job and the remaining 2% were inactive.

The transition to employment of medical school graduates

- Medicine is one of the degree programmes with the highest employment rates. In 2014, the employment rate was 96%, the unemployment rate 2% and the inactive rate 2%, compared to an overall employment rate in Catalonia of 85% and an unemployment rate of 11%.
- In 2014, 95% of employed medical graduates had job specifications that were specific to a degree in Medicine. This figure represents the highest percentage out of all the degree programmes at higher education institutions in Catalonia. The remaining 5% of employed medical graduates had graduate-level job specifications.
- Three out of every four medical school graduates were working in the public sector, with the remainder in the private sector.
- In terms of the transition to employment of medical school graduates, there has been an increasing trend towards healthcare.

The recruitment of medical interns

- The majority of employers (77%) rated the procedure for admitting medical interns as being either adequate or very good.
- The shortcomings of the system stem from the fact that it does not allow for the filtering of soft skills and other essential competences related to the social dimension of the profession (communication, cooperation, professional values).
- Post-Bologna courses have not resulted in training that is more practical because training is determined more by the resident intern doctors examination, which does not take relational competence into consideration. Neither does the period of residency guarantee the acquisition of these competences, because nearly everybody always successfully completes this stage (Verd, Barranco, 2016).
- The factors that employers considered to be the most important as regards recruitment were willingness to work flexible hours and a good command of English. Conversely, previous work experience in the same facility was not considered to be an important factor, although the fact that a doctor had worked at different hospitals and/or facilities was considered to be an advantage.
- The recruitment factors were similar according to the type of facility and health authority (private/public), although a good command of English was considered more important in recruitment in hospitals than in primary health care facilities.

Skills and competences of medical interns

- The competences considered to be the most important were those associated with the roles of collaboration, communication and professionalism.
- Competences rated the lowest were those associated with the role of the health advocate (knowledge of health care-related support systems and health promotion) and the role of leadership in the health system. There were no significant differences between types of medical and healthcare facility.
- The mean level of satisfaction among employers was 7.5, the highest among the four different employer surveys carried out so far (the other three surveys were of private sector employers; employers in preschool, primary and secondary education institutions; and employers in the nursing sector).
- The skills and competences most highly valued by employers in the medical and health care sector were information and communication technologies (ICT) and skills and competences associated with practitioner professionalism (ethical conduct, respect for the opinions and rights of patients, etc.).
- Skills and competences for which the level of satisfaction was lowest were knowledge of health care-related support systems, followed by innovation and research techniques, and ability to deal effectively with uncertainty in clinical practice.
- Overall satisfaction was mainly linked to problem-solving skills and the use of ICT.

- There was scope for improvement and/or development in all skills and competences, i.e. the level of importance was rated higher than the level of satisfaction. Skills and competences with a higher level of deficit were associated with the roles of collaboration and communication. In the case of ICT training and leadership, the scope for improvement was minimal.

The challenges facing skills and competence training and development

The challenge facing skills and competence training and development in the coming years will be to establish training methods that provide for the development and acquisition of skills associated with the practical and relational dimensions of the medical profession, namely, scheduling, time management, the efficient use of resources, communication, team work and a positive attitude.

Induction, training and innovation at hospitals and other health facilities

Almost all hospitals and other health facilities provide graduate induction for medical interns. The most frequent is to provide an intern with a mentor or tutor on joining the facility, as well as ad hoc sessions according to identified training requirements.

The majority of hospitals and other health facilities submitted projects involving quality enhancement (88%) and new forms of association with other hospitals and other health facilities (87%). 75% were in the process of making important upgrades in technology.

Collaboration with higher education institutions

The most frequent form of cooperation with higher education institutions (HEIs) was work placements (76%), and the least frequent involvement in the design of curricula and study programmes (32%)

1. INTRODUCTION

The aim of the study was to assess the skills and competences of medical interns according to the impressions of heads of hospitals and other health facilities, the objective being to provide feedback to undergraduate programmes in Medicine for enhancement purposes.

The skills and competences required of medical school graduates are regulated and defined in international documents. Medicine is a pioneering discipline, not just in terms of the definition and accountability of competences that have to be acquired, but also as far as curricular models for training are concerned.

This analysis of the opinions of hospitals and other health facilities seeks to contribute to the age-long tradition of improving training in health and medical care through the adaptation of degree courses in Medicine in line with the challenges and expectations of society.

The views of employers on the quality of university-level training is a key factor in assessing the fitness-for-purpose of provision, but even more so in the case of Bachelor degree programmes in Medicine given that, pursuant to prevailing regulations, holders of the degree have the right to freely practice as non-specialist medical practitioners.¹

As healthcare professionals, medical graduates have to deal with a host of challenges that stem from working in a health system in which there are increasing demands as well as the need for efficiency and effectiveness. The roles and functions of a medical practitioner call for training as an expert doctor together with the development of skills as a communicator, collaborator, manager and defender of the community's "state of health" (AQU Catalunya, 2004).

Medicine has been a pioneering field in the definition of learning outcomes and the development of training methodologies and systems for evaluation and assessment. It was in the 1970s that, in the field of medical education, the idea began to spread that it was important for emphasis to be focused on the outcomes of learning, i.e. the skills and competences that graduates need to acquire, and not on the learning processes themselves (AQU Catalunya, 2009).

¹ Prevailing regulations:

- Act 44/2003, 21 November, concerning regulation of the medical and healthcare professions, whereby the profession of physician is a regulated profession.
- Directive 2005/36/EC of the European Parliament and of the Council, 7 September 2005, on the recognition of professional qualifications, including that of doctor, based on the harmonisation of a series of minimum training conditions.
- Resolution, 17 December 2007, by the Secretary of State for Universities and Research, which laid down the conditions for curricular compliance.
- Order ECI/332/2008, 13 February, which laid down the requirements for the ex-ante accreditation (validation) of recognised programmes of study that confer authorisation to practice as a doctor.

There are currently three main existing curricular models in medical education and training: parallel training, where courses are structured in a parallel sequential way (for example, anatomy, biochemistry, physiology, etc.); the integrated model, in which a programme covers different subjects and is reviewed as a whole (for example, the respiratory system); and the problem-solving based model. The emphasis on learning outcomes, which in the case of Medicine provides a comparable indicator in the form of medical interns, allows for the development of different processes, the outcomes of which should be similar, i.e. good doctors, regardless of the curriculum.

According to the document *Tomorrow's Doctors* (GMC, 2009), a medical graduate has a threefold role:

- *Doctor as a scholar and scientist.* Throughout their careers, doctors will see the continuous development of biomedical science and clinical practice, changing priorities in healthcare and increasing expectations on the part of society (GMC, 2009, 7). Aside from being able to apply biomedical scientific principles in medical practice for health improvement, they must therefore also acquire, assess, apply and integrate new knowledge.
- *Doctor as a practitioner.* This includes the skills of taking and recording a patient's medical history (anamnesis), diagnosis and treatment, and also the effective communication and use of information.
- *Doctor as a professional.* This is a fundamental dimension in all competence frameworks and refers to the commitment to promoting the health and well-being of individuals and defending and behaving according to ethical principles, with high standards of behaviour.

In 2015 the General Medical Council (GMC) revised the *Tomorrow's Doctors* document, which led to two documents: *Outcomes for graduates* (2015), which sets out the learning outcomes (knowledge, skills and behaviours) that new UK medical graduates must be able to demonstrate, and *Promoting excellence: standards for Medical education and training* (2015), which describes the standards for medical schools (requirements for the management and delivery of undergraduate and postgraduate medical education and training) that are overseen by QA agencies.

The Royal College of Physicians and Surgeons of Canada developed a model, known as CanMEDS 2000, which was revised in 2014 (Frank et al., 2015), according to which medical experts integrate the following roles:

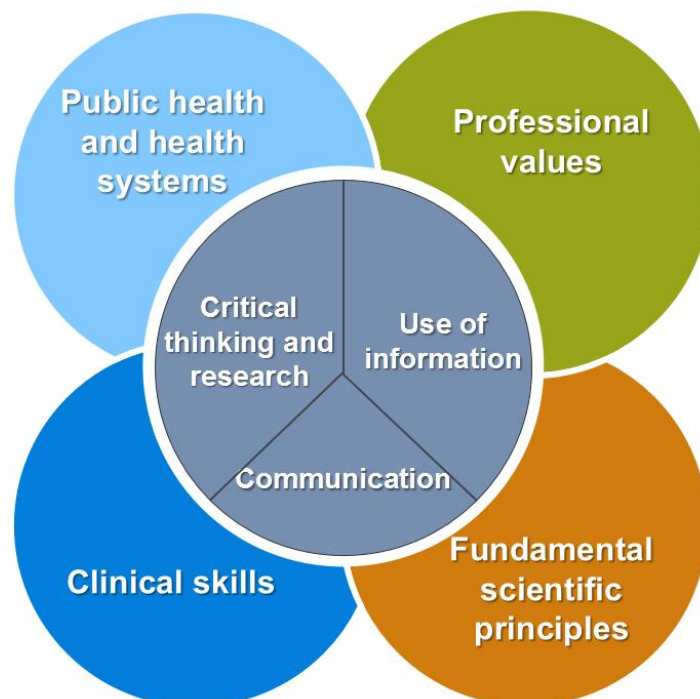
- Professional: commitment of the physician to the health and well-being of individual patients and society through ethical practice.
- Scholar: a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.
- Health advocate: work with communities or patient populations to improve health.
- Leader: responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

- Collaborator: work effectively with other health care professionals to provide safe, high-quality, patient-centred care.
- Communicator: form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.

As medical experts, physicians integrate all of the CanMEDS roles, applying medical knowledge, clinical skills, and professional values in the provision of high-quality and safe patient-centred care (Frank et al., 2015).

The employers study survey is based on a skills model that is consolidated at international level. In 2002, the Institute for International Medical Education (IIME) identified seven domains that define the knowledge, skills, professional behaviour and ethics required of all physicians, which in 2004 were adapted for use in Catalonia in the document *Common basic professional skills of medical graduates from universities in Catalonia* (AQU Catalunya, 2004) and in 2005 in the *White Paper on Medical Graduates* (ANECA, 2005). These seven domains also constitute the fundamental groups of skills and competences that must be acquired in accordance with Order ECI/332/2008, 13 February, which laid down the requirements for the ex-ante accreditation (validation) of recognised programmes of study leading to the authorisation of professional practice as a doctor.

Figure 1. Diagrammatic representation of the skills of medical graduates (AQU Catalunya, 2004)





In addition to the IIME model (2002), special mention is made of the Canadian CanMEDS 2015 model. The catalogues of skills in *The Scottish doctor* (2000) and *The Tuning Project (Medicine)* (Cumming, Ross, 2008) should also be taken into account, as well as *Good medical practice* (GMC, 2013) and the Foundation Programme standards (PMETB, 2008).

2. POPULATION AND SAMPLE

The study on the perceptions of hospitals and other health facilities regarding the skills and competences of medical interns consists of 90 responses from the heads of hospital services (73%), primary health care facilities (24%) and other centres (3%). All survey activities were carried out on line.

The study also includes the results of the employment outcomes survey carried out in 2014, in which 296 medical school graduates were surveyed six years after graduation, 96% of whom were in employment, 2% were looking for a job and the remaining 2% were inactive.

The data were then checked against the information gathered from a focus group consisting of 10 employers (4 from public hospitals and health facilities, 5 from private and subsidised facilities and 1 from the pharmaceutical industry).

In 2014, 89% of medical school graduates who had completed their studies in 2008 were working in the specialised healthcare field, 8% in general practice and the remainder in non-clinical jobs. The sample of employers is therefore representative of the various fields in which graduates were working.

2.1. Characteristics of the survey sample

This study offers information that is complementary to that gathered in the surveys of graduate employment outcomes (AQU Catalunya, 2014) and a focus group with employers in the medical and healthcare sector (Verd, Barranco, 2016). This body of information represents an opportunity to rigorously account for the perspective of the labour market in programmes of study in medicine.

Figure 2. Recent studies, including the sample size, on the fitness-for-purpose of training (training-job skills match) provided by degree studies in Medicine at HEIs in Catalonia, from a labour market perspective

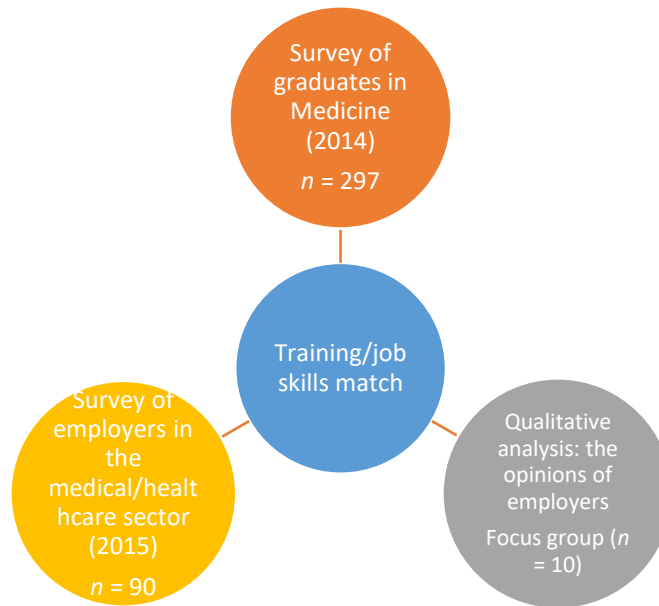


Table 1 summarises the population and sample of the four surveys of medical school graduates.

Table 1. Population and sample of medical school graduates in the four surveys of graduate employment outcomes

Year of survey	Population	Sample	Response rate	Sample error
2014	615	297	48.29%	4.09%
2011	612	277	45.26%	4.36%
2008	654	280	42.81%	4.43%
2005	563	249	44.23%	4.64%
Total	2,444	1,103	45.13%	

As far as medical employers is concerned, the aim of this study was for heads of hospitals and other health facilities (and those in equivalent or similar positions) to assess the skills and competences of their medical intern staff. Medical intern is a term used to describe a graduate of a medical school who has been awarded a degree in Medicine and is training in a particular speciality (such as radiology, paediatrics, psychiatry, etc.).

It would have been impossible to identify the heads of hospitals and other health facilities (and those in equivalent or similar positions) without the cooperation of the Catalan Ministry of Health, which provided contact with the different hospitals and other health facilities for obtaining the relevant e-mail addresses.

As a result, a total number of 606 e-mail addresses of heads of hospitals and healthcare services in Catalonia were obtained, 90 of which provided useful responses² to the survey, and on which this report is based. As shown in the following table, the response rate was 14.85%, with a sample error of 9.73%.

Table 2. Final population, sample, response rate and sample error

Final population	Sample	Response rate	Sample error
606	90	14.85%	9.73%

The public or private nature of a facility and the health authority under which it comes (either the Catalan Institute of Health/Institut Català de la Salut/ICS or the Public Hospital Network/XHUP) both have an effect on its recruitment capacity. The type of centre (primary health care facilities as to hospitals) may also have an influence on the way in which graduate skills and competences are assessed.

The majority of responses (73%) were from hospitals, 24% were from primary care centres and 3% from other types of facility. Primary health care facilities are publicly owned, whereas hospitals are divided almost equally between public and private ownership.

40% of the centres came under the ICS, all of which were public, and the remaining 60% came under the XHUP or other entities. Of the latter group, 40% were publicly run and 60% were either private or subsidised.

The majority of the centres under the XHUP are hospital facilities, whereas ICS centres were distributed equally between primary care centres and hospitals.

Table 3. Health authority and type of centre

	<i>N</i>	Primary health care facilities (<i>n</i> = 21)	Hospital (<i>n</i> = 64)	Others (<i>n</i> = 3)	Total
ICS	35	48.6%	48.6%	2.9%	100.0%
XHUP and other	53	7.5%	88.7%	3.8%	100.0%

² A "useful" response is one where section 3 of the questionnaire (on the skills and competences of medical interns) was completed (see annex 2 for details of section 3).

Total	88	23.9%	72.7%	3.4%	100.0%
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2.2. The transition into employment of medical graduates

Employment destinations for medical school graduates, six years after completing their degree studies, were clearly more favourable than the overall situation of other graduates. Employment rates remained practically stable, ranging from between 99% in employment in 2008 to 96% in 2014. At these two points in time, the comparable rates for the total number of graduates in Catalonia were 93.5% and 83.7%, respectively. Nevertheless, the economic crisis had a negative impact on job stability and led to a reduction in working hours, with a drop in permanent (fixed-term) contracts from 52% in 2008 to 31% in 2014 and a decrease in the full-time employment rate from 87% to 74% between the same two years of reference.

Employment destinations did not vary very much throughout the period covering the four surveys in which there are graduate employment outcomes for medical graduates. Just over 75% of medical school graduates worked in the public system and just under 25% in the private system. The high percentage in the public sector partially explains the low percentage of permanent (fixed-term) contracts due to the fact that employment in the public sector includes periods of substitute staffing and temporary postings.

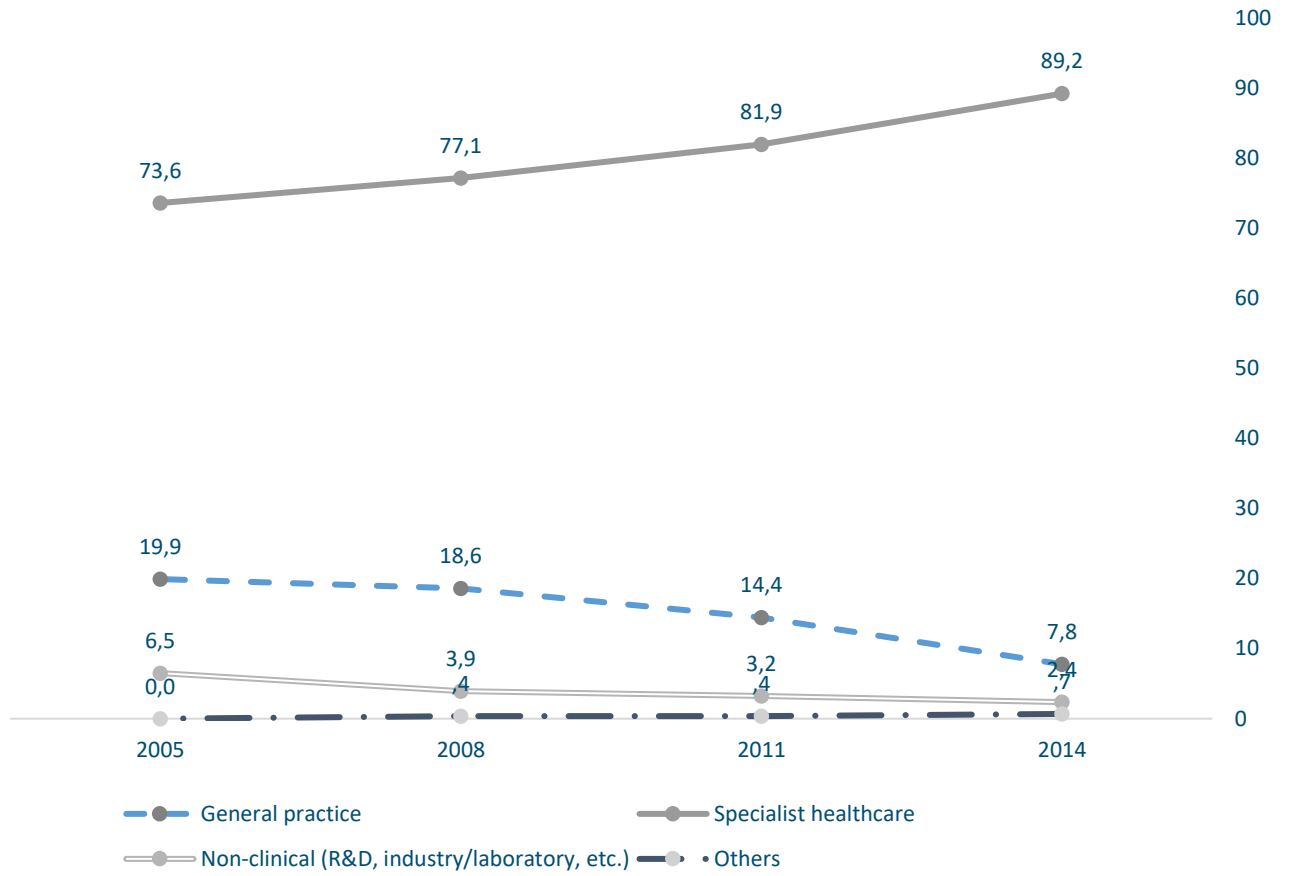
Table 4. Employment destinations of graduates (%) according to sector (public/private)

	<i>n</i>	Public	Private
2005	246	73.98%	26.02%
2008	280	78.21%	21.79%
2011	277	78.34%	21.66%
2014	296	77.36%	22.64%

In 2014, 95% of employed graduates had job specifications that were specific to a degree in Medicine (education/job skills match). This figure represents the highest percentage for any degree programme in the university system in Catalonia. The remaining 5% had graduate-level job specifications.

In terms of the type of employment within the medical and healthcare sector, there was an increase in specialised healthcare and a decrease in general practice.

Figure 3. Trends in the destinations of medical graduates



3. ADMISSION TO INTERNSHIPS IN HOSPITALS AND OTHER HEALTH FACILITIES

The majority of employers (77%) rated the process of admission to a medical internship as being either suitable or very suitable.

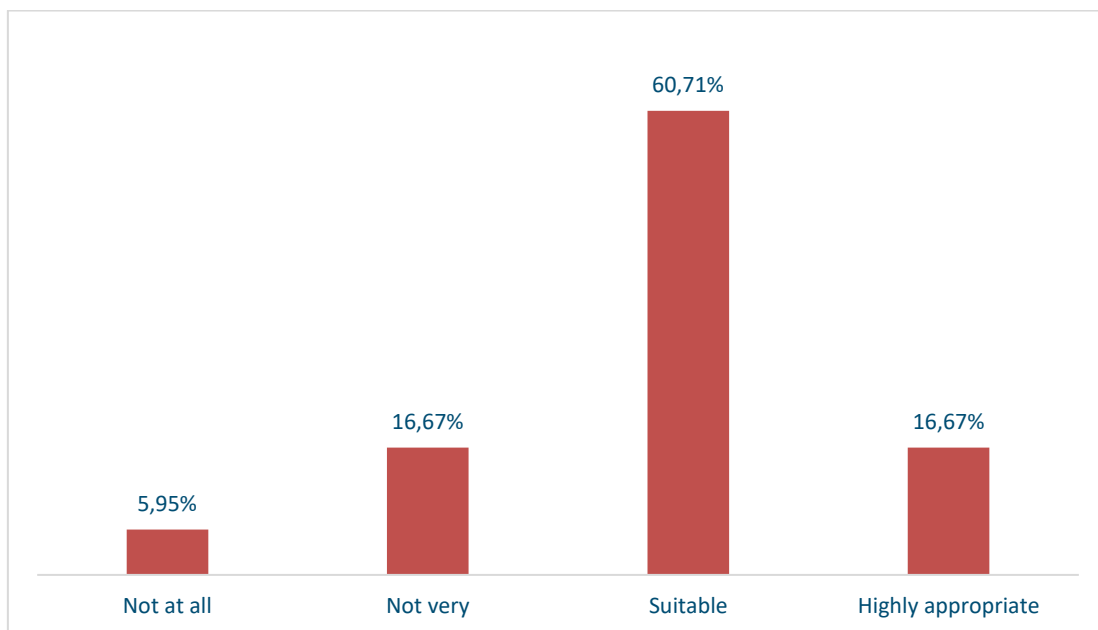
The main shortcoming of the internship admissions system is that it does not allow for the filtering of skills that are essential as regards the social dimension of the profession (communication, collaboration, professional values).

The factors considered to be the most important for employers as regards recruitment were willingness to work flexible hours and a good command of English.

Previous work experience in the same hospital or facility was not considered to be an important factor, although the fact that a doctor had worked at different hospitals and/or facilities was considered to be an advantage.

Three out of every four employers rated the procedure for admission to a medical internship as being either suitable or very suitable.

Graph 1. Fitness-for-purpose of the internship admission procedure



Criticism of the exam for medical interns, according to the findings of the focus group, is based on the fact that it does not take into consideration social or relational competence in medical practice, and it is therefore useless in filtering out graduates with important gaps in skills that are necessary in order to become a good doctor. Employers also consider that the implementation of the Bologna Plan, which was meant to result in training that was both

practical and applied in nature, has in practice led to an increase in the teaching load due – in their opinion – to the fact that the exam for medical interns conditions the entire training process (Verd, Barranco, 2016).

Neither does the period of residency ensure the acquisition of these skills, because nearly all interns successfully complete this stage and as such it is considered a mere formality (Verd, Barranco, 2016). Two comments, in reply to an open question in the survey, illustrate this situation:

“One has to be honest and, if a resident is not progressing well, it is better to warn them about the situation.”

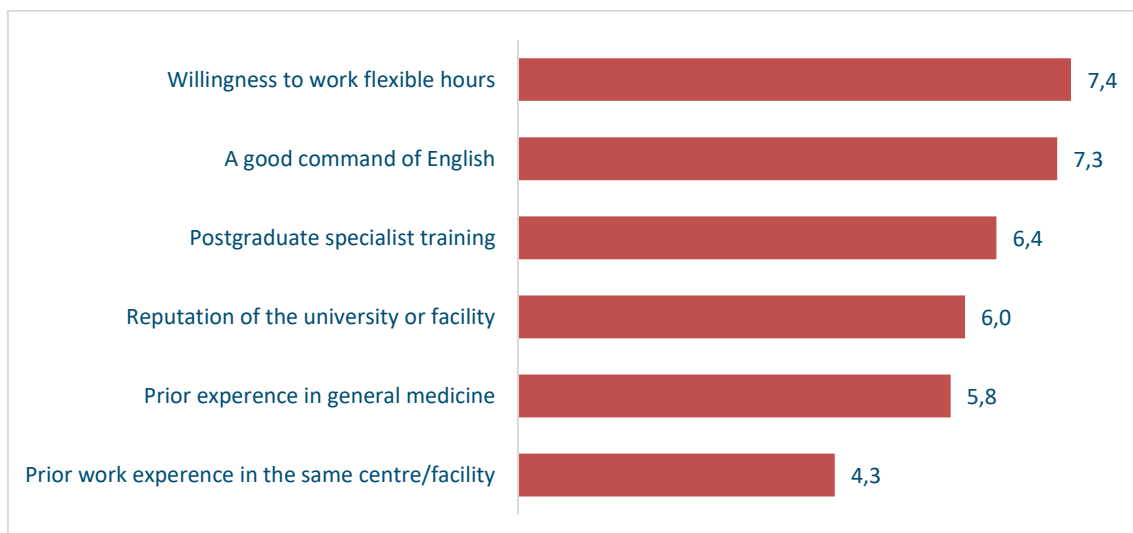
Employer 1

“We've had lots of problems with people who have a couldn't-care-less attitude, others who hardly want to do any work, as well as psychiatric problems with three. It's very difficult to get them to leave the system. Some of them are really good, but the system gives rise to a situation in which those who cut corners and those who work hard and are deserving all end up becoming specialists. So something is not right....”

Employer 2

The factors that employers considered to be the most important as regards recruitment were willingness to work flexible hours and a good command of English

Graph 2. Mean importance of the factors involved in the recruitment of medical interns, according to heads of hospitals and healthcare facilities



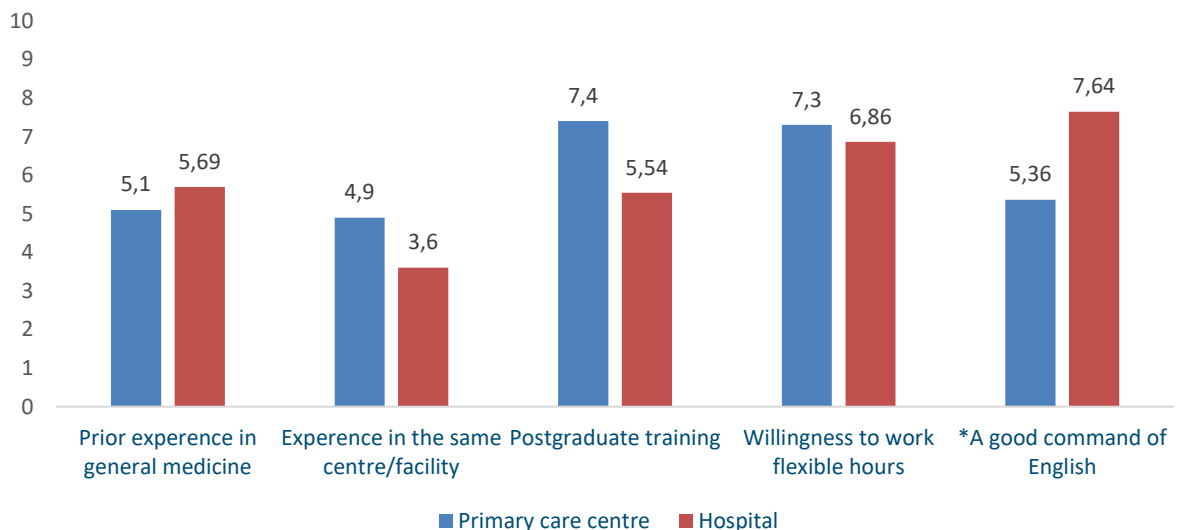
One aspect that was positively assessed in the focus group was the fact of having worked at different hospitals, as this guarantees a certain level of flexibility and adaptability. This would explain the low rating for prior work experience in the same facility as a factor in recruitment. This is in clear contrast with the findings for nursing, where this factor, with a rating of 8.3, was considered to be the most important in recruitment (AQU Catalunya, 2016).

This also contrasts with the rating for the importance of a good command of English: 3.7 out of 10 for nursing, whereas for medicine it was 7.3. This is probably due to the high level of importance given to continuous training in the medical profession.

Another aspect that came up in the focus groups and was considered to be an element of quality in recruitment was the social and relational dimension. There is an open question in the employers survey that deals with "other recruitment factors", which include attitudinal and vocational aspects (mentioned by $n = 4$ individuals) and social skills ($n = 2$). It should be pointed out however that the academic record (transcript) or medical intern number ($n = 5$) as well as interest in the speciality ($n = 6$) also appear with the same level of intensity. There would thus seem to be a balance between the relational aspects and the importance of the academic dimension, which appears in the competence frameworks mentioned at the beginning: fundamental scientific principles as well as communication skills, the role of the scholar as well as the collaborator and communicator.

There were no differences according to public or private centres, nor for hospitals and facilities under the Catalan Institute of Health (ICS) or the Public Hospital Network (XHUP). According to the type of facility, however, there were certain differences. Primary health care centres ($n = 21$) rated a postgraduate training in the speciality as being the most important, followed by willingness to work flexible hours. In the case of hospitals, however, a good command of English was the most important recruitment factor, followed by willingness to work flexible hours.³

Graph 3. Importance of the recruitment factors according to the type of centre



³ Nevertheless, the differences are only significant for the importance of a good command in English (bootstrapping method, application of inference function R, developed by Dr. Mine Cetinkaya-Rundel).

4. SKILLS AND COMPETENCES OF MEDICAL INTERNS

The skills and competences considered to be the most important for medical interns are those associated with the roles of collaborator, communicator and professional.

The lowest rated competences were those associated with the role of health advocate (knowledge of health care-related support systems and health promotion; and health promotion, protection and prevention) and the role of leader in the healthcare system. There were no significant differences according to type of centre.

Mean employer satisfaction was 7.5, the highest rating out of all the four employers studies carried out so far (the other three studies were of private sector employers, employers in education and nursing employers).

The skills and competences most highly valued by medical employers were information and communication technologies (ICT) and skills associated with medical professionalism (ethical conduct, respect for the opinions and rights of patients, etc.).

Skills and competences for which the level of satisfaction was rated lowest were knowledge of health care-related support systems and health promotion, followed by innovation and research techniques, and the recognition of and effective response to uncertainty in clinical practice.

Overall satisfaction was mainly linked to problem solving and the use of ICT.

There was scope for improvement and/or development in all skills and competences, i.e. the level of importance was rated higher than the level of satisfaction. Skills and competences with a higher level of deficit were associated with the roles of collaboration and communication. In the case of ICT training and leadership, the scope for improvement was minimal.

The challenge facing skills and competence training and development in the coming years will be to establish training methods that provide for the development and acquisition of skills and competences associated with the practical and relational dimensions of the medical profession, namely, scheduling, time management, the efficient use of resources, communication, team work and a positive attitude

One of the main objectives of this study was to obtain the opinions of heads of hospitals and other health facilities (and those in equivalent or similar positions) as to the skills and competences of medical interns. Skills and competence assessment is dealt with from a two-fold perspective: the importance of these skills and competences in medical practice and the level of satisfaction with these skills and competences. This two-fold perspective is based on the assumption that, in order to be able to determine training requirements, the rating of the importance of skills and competences also needs to be complemented by their usefulness. And in order to be able to prioritize where improvements are most necessary, focus needs to be put on the skills and competences where there is the biggest disparity between the level of satisfaction and level of importance, instead of just a low level of satisfaction (Allen, Van Der Velden, 2005).

The skills and competences assessed include those necessary for medical practice as well as those of an interpersonal, personal management, instrumental, professional, attitudinal and ethical nature.⁴

In order to assess the skills and competences of medical interns, it is necessary for a facility to have recruited them. This section therefore includes the assessments by informants who had recruited medical interns and completed the skills section of the questionnaire, which was a total number of 71 hospitals and other health facilities.

4.1. Importance of the different skills and competences of medical interns

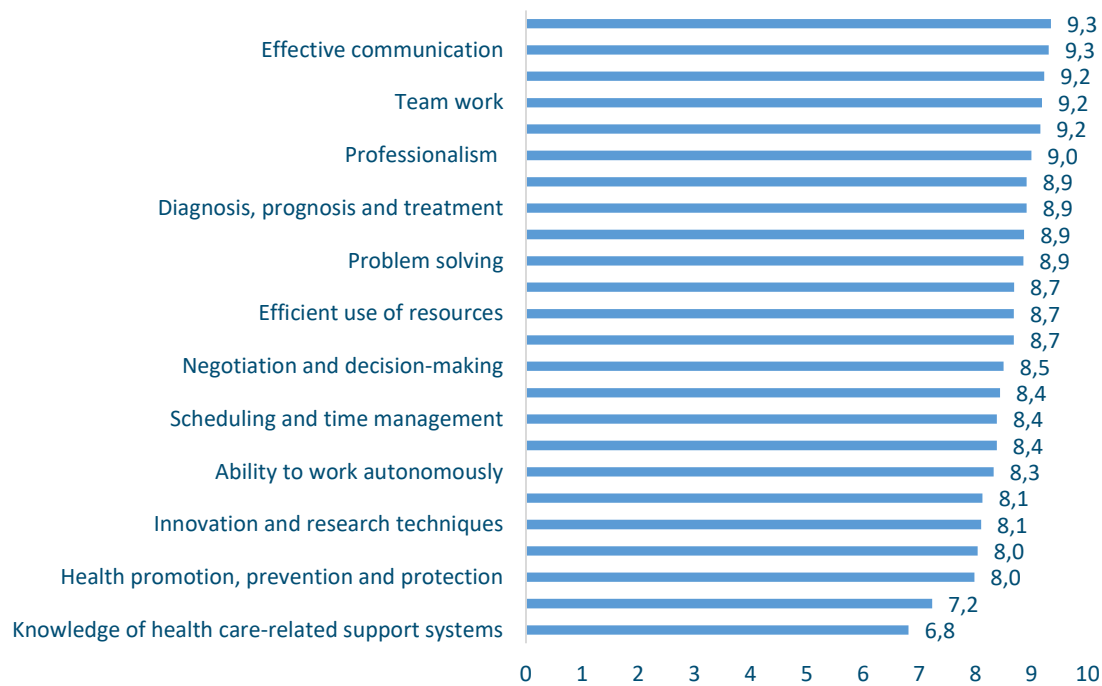
Out of the 24 skills and competences assessed, six were rated higher than 9. This first group is made up of medical professionalism (professional values) and ethical conduct, together with two collaboration skills: communication and team work.

Graph 4 shows the mean rating for the skills and competences of medical interns. On a scale from 0 to 10, the overall mean rating was 8.5.

The skills and competences most highly rated, according to the CanMEDS nomenclature (Frank et al., 2015), were those associated with the roles of collaborator, communicator and professional. In other words, skills and competences related to working effectively with other health care professionals, with the forming of relationships that facilitate the gathering and sharing of essential information for effective health care, the development of professional practice with the commitment to a series of shared values of respect, ethical practice, etc.

⁴ See group 3, annex 2 for a detailed list.

Graph 4. Mean importance of the skills and competences of medical interns

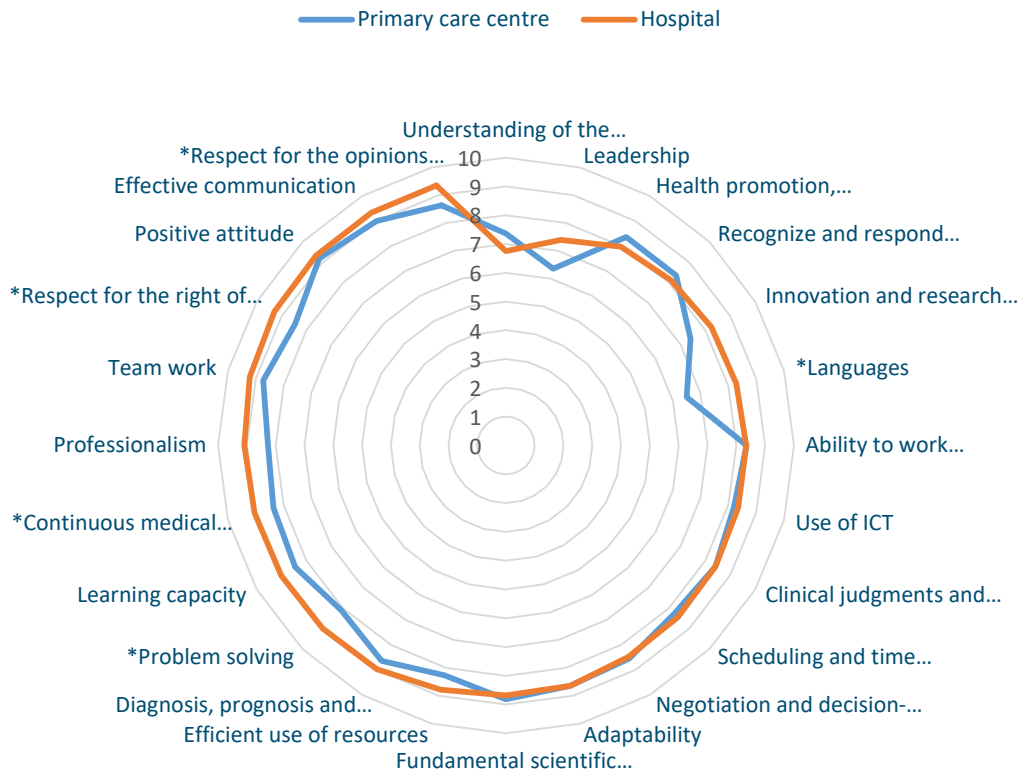


Conversely, the competences rated the lowest were those associated with the role of health advocate (knowledge of health care-related support systems and health promotion) and the role of leader. According to the definition by CanMEDS (Frank et al., 2015), as leaders, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers

Between these come all of the skills and competences associated with doctors as scholars (the application of fundamental scientific principles and continuous training), doctors as practitioners (diagnosis, prognosis, etc.), personal management and the efficient use of resources.

There were few differences according to the type of health facility (hospitals compared to primary health care facilities). In general, the importance ratings were slightly higher for hospitals. A comparison of means testing only gives significant differences in five out of the 24 skills and competences. It would therefore appear that the skills of problem solving, languages and continuous training, as well as respect for patients (both participation and the opinions, beliefs and rights of patients), are slightly more important in hospitals. These differences however are only greater than one point (on a scale from 0 to 10) in one case (languages).

Graph 5. Mean importance of the skills and competences of medical interns according to type of medical/healthcare centre



(*skills and competences for which the difference is statistically significant)⁵

The data are not given according to the public or private nature of the facility because the differences are only greater than half a point (on a scale from 0 to 10) in one case.

⁵ The bootstrapping method for sample comparison was applied using inference function R developed by Dr. Mine Cetinkaya-Rundel.

4.2. Satisfaction with the skills and competences of medical interns

The mean level of satisfaction with the skills and competences of medical interns (only among employers who are responsible for medical interns) was 7.52, the highest of all the employers studies.⁶

Use of information and communication technologies (ICT) and skills related to professionalism and team work were the skills and competences most highly rated. ICT have led to constant change in medical practice (telehealth, population health management, data analysis, precision medicine, etc.) (GovLoop, 2016). In the new CanMEDS standards (Frank et al., 2015) the roles of communicator, leader and professional were adapted to incorporate the new technological aspects of *eHealth* (assist patients and their families to identify, access, and make use of information and communication technologies; information security; the use of health technologies to optimise the treatment of patients, etc.).

Conversely, there was a markedly low level of satisfaction with the knowledge of health care-related support systems across all areas of healthcare. This competence comes under dimension V of the learning outcomes for Medicine (AQU Catalunya, 2004) and also forms part of the aforementioned competence frameworks (IEM, CanMEDS).

On the other hand, the relatively low level of satisfaction with skills in innovation and research techniques may have to do with the assertion – from the focus group with employers – that it is necessary to know how to correctly interpret scientific output in the discipline as well as within the context (Verd, Barranco, 2016). The recognition and effective response to uncertainty, which was also rated relatively low, is a core competence in medical practice, more especially as it is not always possible nor feasible in decision making to have all the necessary information to be able to take clear action. Nevertheless, the development of this competence is very much dependent on the actual practice of medicine.

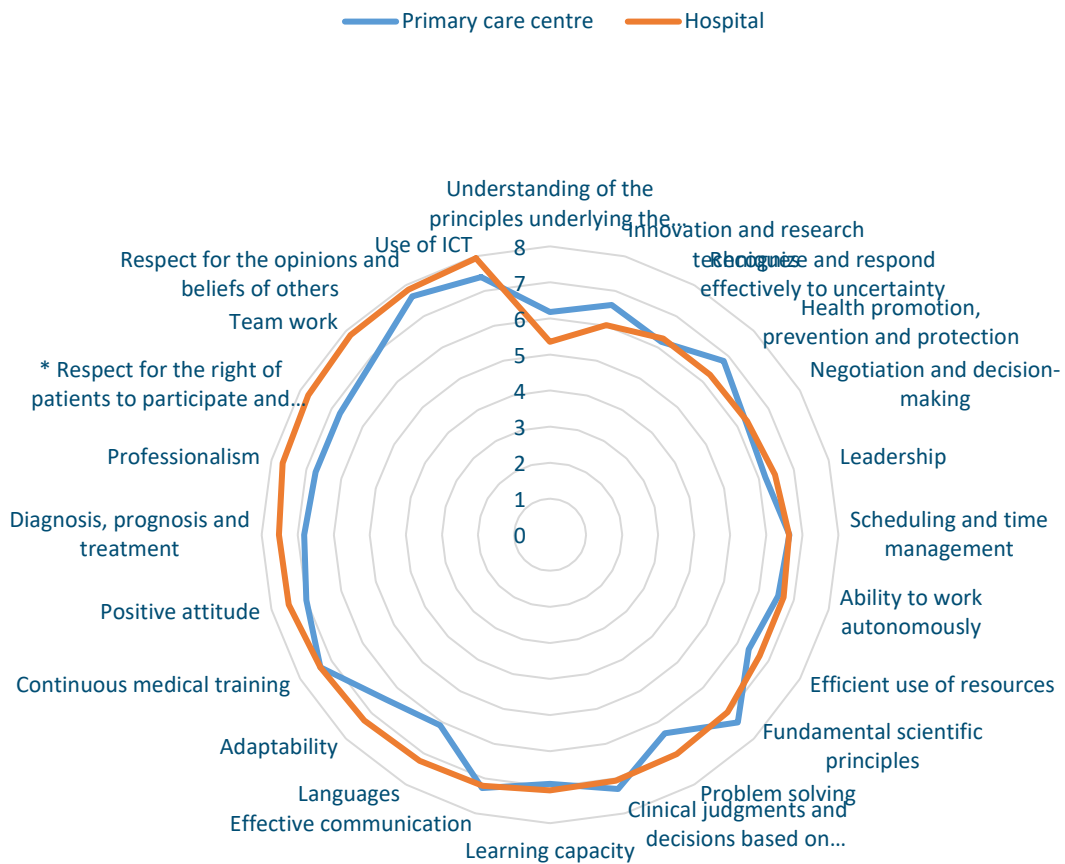
⁶ Mean employer satisfaction with the skills and competences of recent graduates in the general employers survey was 7 out of 10. Employer satisfaction with recent nursing graduates was 7.2 and that of employers in education 6.8.

Graph 6. Mean satisfaction with the skills and competences of medical interns



As far as a comparison according to the type of facility is concerned, given that the analysis involved 71 employers (out of 90) with medical interns and, of these, only 67 were either hospitals (56) or primary health care facilities (11), there were no significant differences in the comparisons (using a simulation methodology), for which reason the results are not given here.

Graph 7. Mean satisfaction with the skills and competences of medical interns according to the type of facility



What skills and competences are useful for predicting higher overall satisfaction?⁷

The following section analyses 24 skills and competences in terms of their usefulness in predicting overall satisfaction.

⁷ The analysis is statistically complex because the majority of skills and competences are linked to each other (with correlations that are between moderate and high), which means that regression models for prediction do not give valid results for individual predictors (because of collinearity). R² of the model, with seven variables, is 68%. Lasso regularisation was used to select the explanatory variables due to collinearity between the skills and competences that produce negative coefficients when analysed together.

Table 5. Results of the regression model for predicting overall satisfaction

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	237.19	0.55	4.34	0.00	***
Communication	0.12	0.09	1.36	0.18	
Learning capacity	0.09	0.08	1.17	0.25	
Problem solving	0.20	0.08	2.49	0.02	*
Autonomy	0.05	0.07	0.73	0.47	
Use of ICT	0.13	0.06	2.28	0.03	*
Innovation & research	0.08	0.06	1.36	0.18	
Continuous training	0.06	0.08	0.69	0.49	

As can be seen from table 5, there are two skills/competences for which the variation in satisfaction significantly predicts changes in overall satisfaction:

- problem solving, and
- use of ICT.

According to the model, for each point of variation in satisfaction with the ability to solve problems, there is an increase of 0.20 in overall satisfaction and for each point of variation in satisfaction with the use of ICT, it increases 0.13.

There is a high correlation between problem solving (0.7) and effective communication, and a moderate correlation (above 0.3) with the remaining skills and competences, except for the use of ICT. Problem solving is therefore associated with effective communication, a positive attitude, negotiation and decision-making, scientific evidence-based practice and performing procedures with increasing autonomy, all with correlations equal to or above 0.6.

In contrast, there is only one correlation for the use of ICT above 0.6: languages.

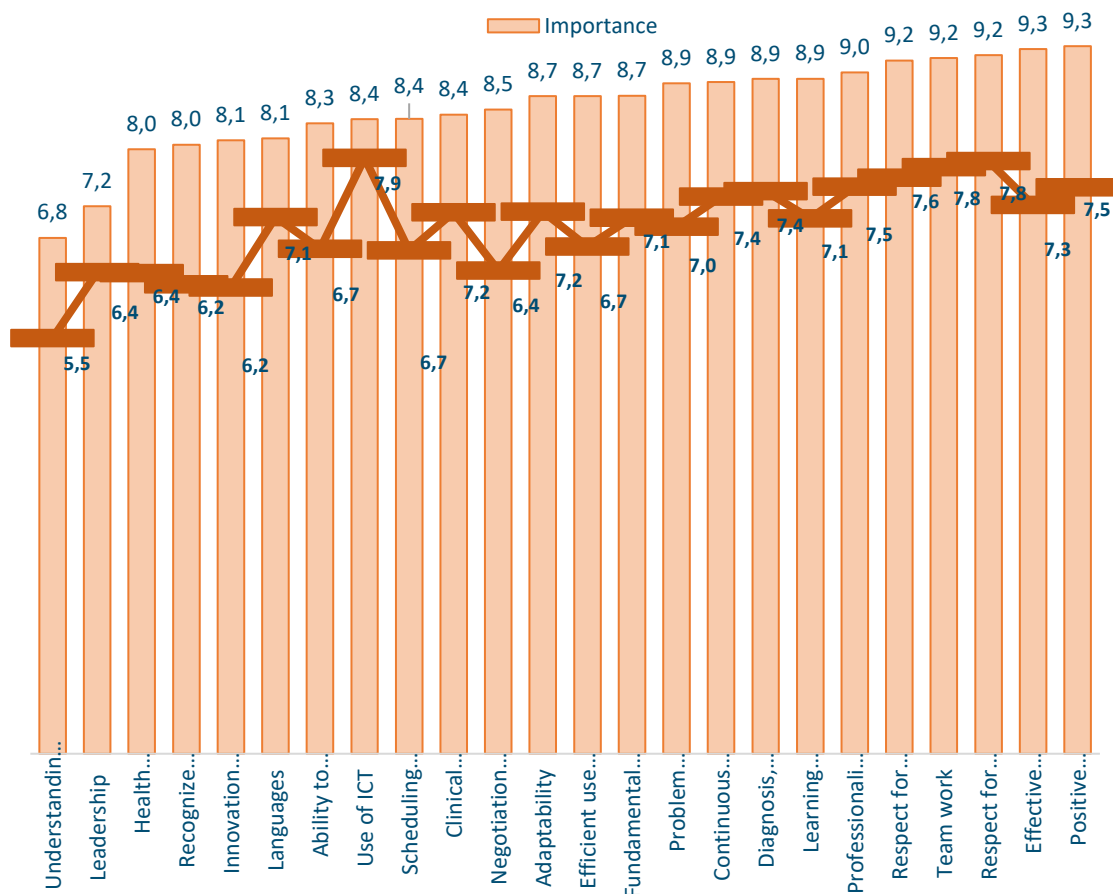
In summary, overall satisfaction is linked to the ability to solve problems, which involves the use of a considerable number of skills and competences (communication, autonomy, a positive attitude, etc.), as well as the efficient use of ICT, which is associated with a good command of English.

4.3. Comparison between the importance of and satisfaction with the skills and competences of medical interns

Importance was rated higher for all skills and competences (on a scale from 0 to 10) than satisfaction with these same skills and competences, which indicates scope for improvement. For all skills and competences, except for languages and the use of ICT, the difference between importance and satisfaction was higher than 1 point. The high level of satisfaction with medical training – compared to the level of employer satisfaction with other degrees – suggests that the difference is due not so much to shortcomings in training, but to the high demands of the profession, which make it necessary for the initial level of training to be frequently updated and progressively improved through professional practice.

In general, there is a positive trend between the importance placed on and the satisfaction with skills and competences.

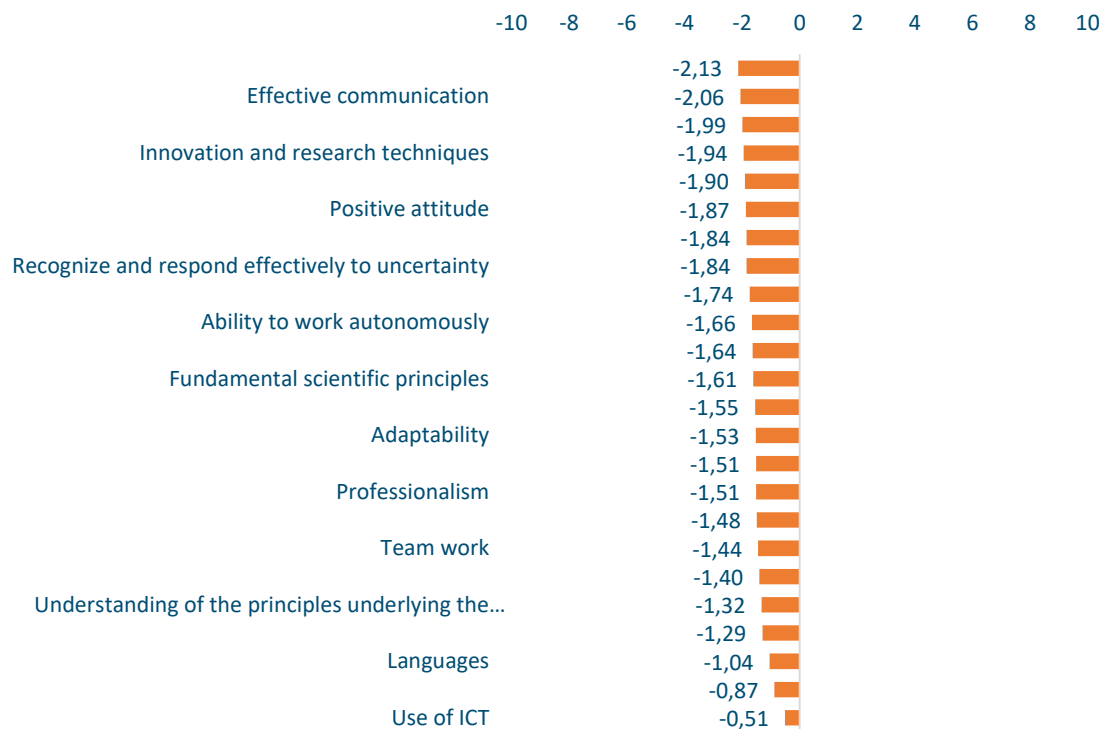
Graph 8. Comparison between the mean levels of importance of and satisfaction with the skills and competences of medical interns



Graph 9 shows the scope for improvement between the levels of importance and satisfaction in descending order.

The two skills where there was a higher deficit are associated with the roles of collaborator and communicator: negotiation and decision-making, and effective communication. Relational competence in interactions was also considered to be an aspect that needs to be improved in medical training, which of necessity has to be developed in the practical aspect of contact with patients, families and other colleagues in the health care professions. The efficient use of resources and problem solving are skills that are closely related to the practical side of training. Innovation and research techniques, on the other hand, form part of the more academic (scholarly) side of training.

Graph 9. Difference between the mean satisfaction and mean importance of the skills and competences of medical interns

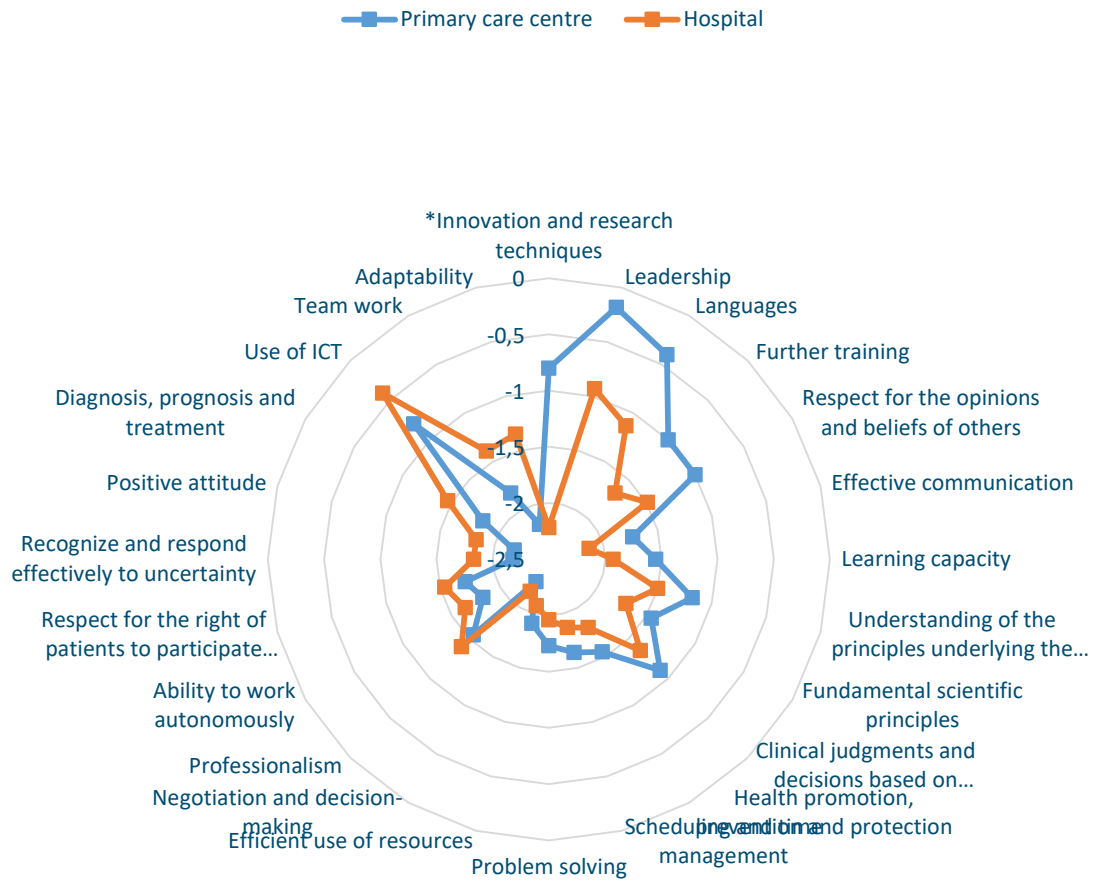


On the other hand, ICT training (highlighted as a trend by GovLoop, 2014) and leadership (highlighted in the CanMEDS model, as seen above) are not perceived as priority shortcomings. Neither did these skills and competences appear in the focus group as aspects to be improved in training programmes. Emphasis was however put on an imbalance between training in what are more technical skills and communication and collaboration skills (Verd, Barranco, 2016).

It is perhaps necessary to contextualise the fact that the role of leadership is not perceived as being very important: what is being assessed here is the skills and competences of medical interns, who are at the start of their professional career, whereas the CanMEDS model (Frank et al., 2015) is aimed at the skills and competences of specialist doctors, where taking responsibility makes much more sense as far as medical excellence is concerned.

According to the type of facility, the differences are very small. As can be seen in graph 10, they are only significant in the case of innovation and research techniques, with hospitals having a gap of 2.22 points, whereas for primary health care facilities the gap is 0.80.

Graph 10. Difference between the mean satisfaction and mean importance of the skills and competences of medical interns according to the type of medical/healthcare facility
(*skills and competences for which the difference is statistically significant)⁸



⁸ The bootstrapping method for sample comparison was applied using inference function R developed by Dr. Mine Cetinkaya-Rundel.

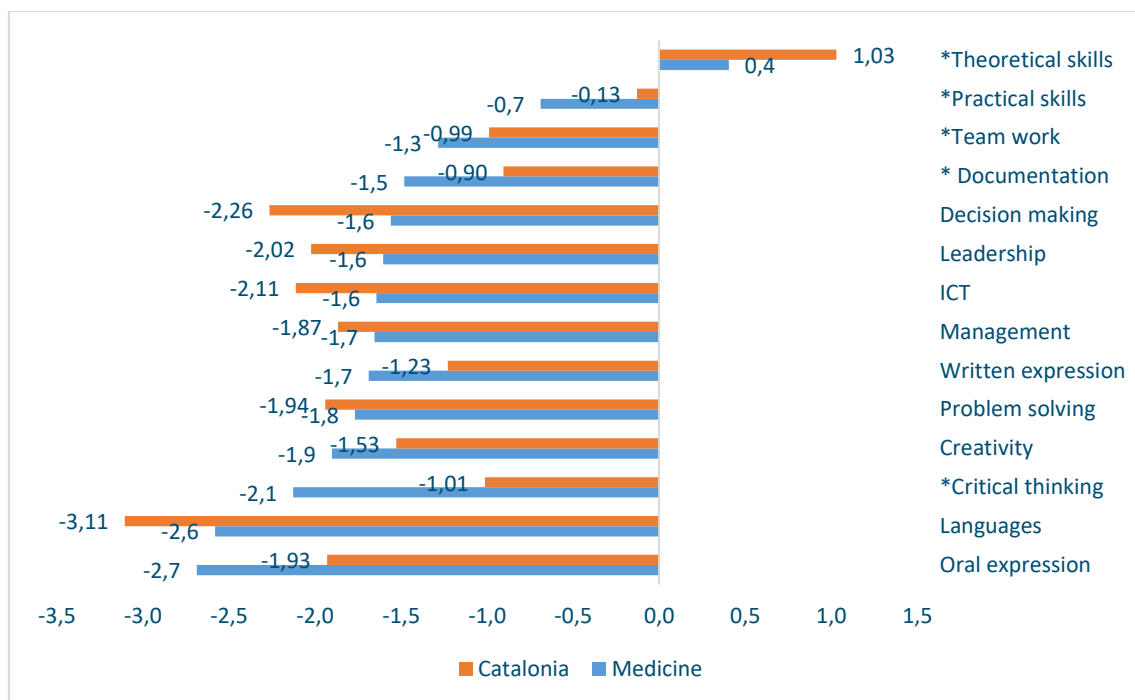
4.4. The scope for improvement according to medical graduates

University graduates consider that the most scope for improvement is in oral communication and languages, whereas there is much less scope for improvement in theoretical skills and practical skills.

As is the case with employers, skill gaps are more evident than in the majority of degree programmes, which shows that this discipline requires a high level of skills and competence development.

Graph 11. Scope for improvement according to medical graduates compared to graduates in general in Catalonia

(*skills and competences for which the difference is statistically significant (Student t test))



If one compares the skills gap with the total skills gap (general employers survey) for Catalonia, it is only in decision making that the scope for improvement is significantly lower for medical graduates than for graduates in general. On the other hand, the skills gap is much bigger for team work, theoretical skills and practical skills, documentation and critical thinking, although the difference is only higher than one point for critical thinking.

4.5. The challenges to skills training and development

In this section skills and competences have been grouped for simplification purposes and to prioritise the challenges that training at medical schools will face in the coming years, according to the perceptions of employers regarding the skills and competences of medical interns.

The groups of skills and competences are as follows:

1. Conceptual foundations and clinical practice, which includes the core skills or key competences of the medical profession: application of the fundamental scientific principles, medical practice based on scientific evidence, and patient diagnosis, prognosis and treatment.
2. Health advocate, which includes two competences: knowledge of health care-related support systems, and health promotion, protection and prevention.
3. Collaboration, which takes in three skills: team work, effective communication and positive attitude.
4. Resources, which include: scheduling and time management, and the efficient use of resources.
5. Professionalism, which takes in three skills: medical professionalism, respect for the opinions and beliefs of others, and respect for the right of patients to participate and be informed.⁹
6. Languages and ICT.
7. Learning and autonomy, which include: learning capacity and self-learning, adaptability, ability to work autonomously and the commitment to self development.

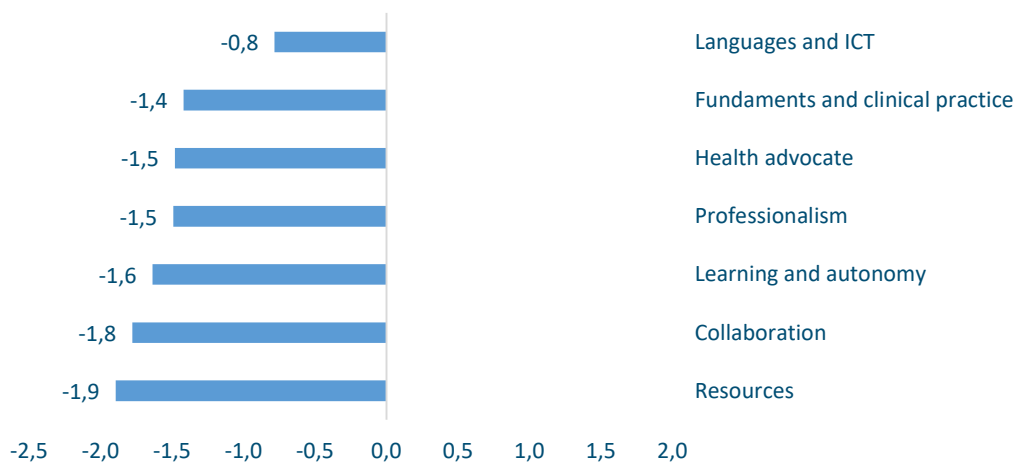
The two following graphs show the importance of and satisfaction with these seven groupings of skills and competences, together with the scope for improvement.

⁹ A recent doctoral thesis (Soler, 2015) deals with an instrument for assessing the dimension of professionalism (values of medical practice) in undergraduate medical degrees (Bachelor's in Medicine).

Graph 12. Importance of and satisfaction with the groups of skills and competences



Graph 13. Scope for improvement in the groups of skills and competences



According to the graphs, the priorities for improving programmes of study are those that encourage the development of skills and competences associated with the practical and relational dimensions of the medical profession. These two groups of skills and competences have to be developed in real contexts.

On the other hand, languages and the use of ICT are not an obvious priority at the present time, according to the data from this study.

5. INDUCTION, TRAINING AND INNOVATION AT HOSPITALS AND OTHER HEALTH FACILITIES

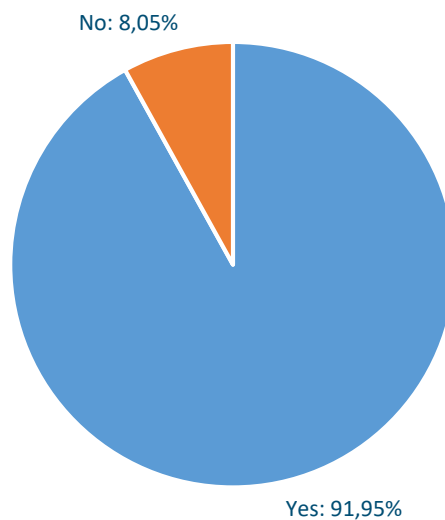
Nearly all hospitals and other health facilities provide graduate induction for medical interns. The most frequent was the provision of a mentor or tutor to interns joining the centre, as well as ad hoc training sessions according to identified requirements.

The majority of medical and healthcare facilities run quality enhancement projects (88%) and are actively involved in new forms of association with other medical and healthcare facilities (87%). 75% are also in the process of implementing important technological advances.

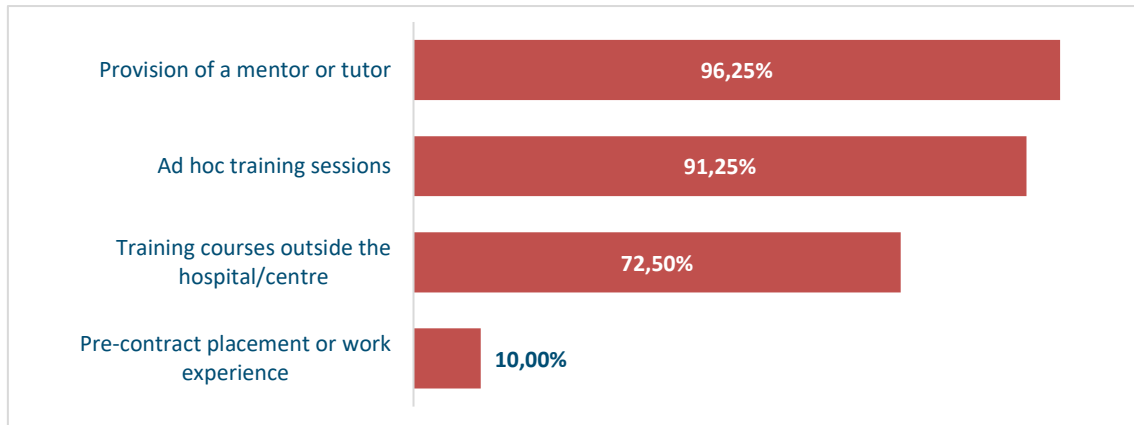
5.1. Induction and training for medical interns at hospitals and other health facilities

Nearly all hospitals and other health facilities in the sample (92%) stated that they provide some kind of induction and/or training for medical interns that join the medical centre or service. Training activities include the provision of a mentor or tutor to interns joining the facility (96%), ad hoc training sessions according to identified requirements (91%) and training courses outside the facility (72%).

Graph 14. Induction and training for medical interns at the medical/healthcare facility



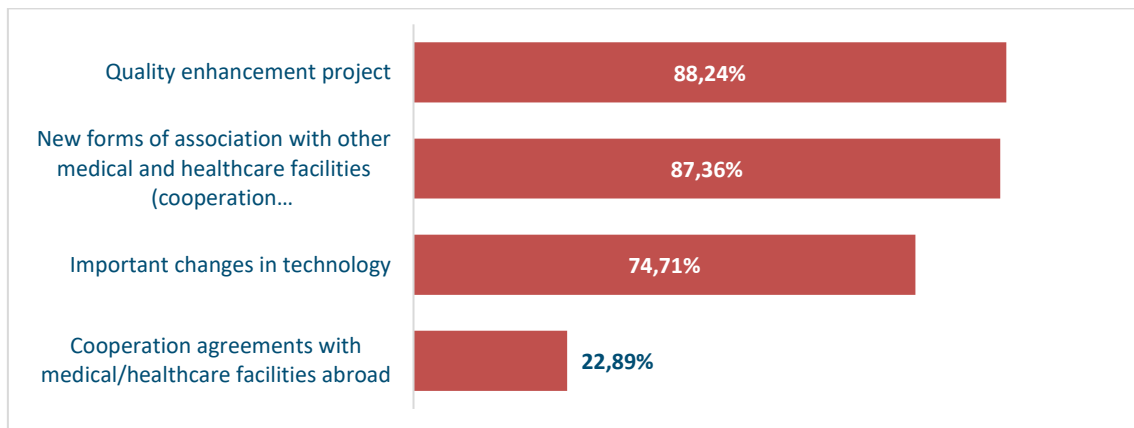
Graph 15. Type of induction and training provided for medical interns



5.2. Innovation strategies at hospitals and other health facilities

In terms of innovation measures, the great majority of medical and healthcare facilities run quality enhancement projects (88%) and are actively involved in new forms of association with other medical and healthcare facilities (87%). 75% are also in the process of implementing important technological advances, in line with the GovLoop 2016 report. On the other hand, only a minority stated that they had collaborative agreements with hospitals and/or centres abroad (23%).

Graph 16. Innovation measures at the medical facility and/or service



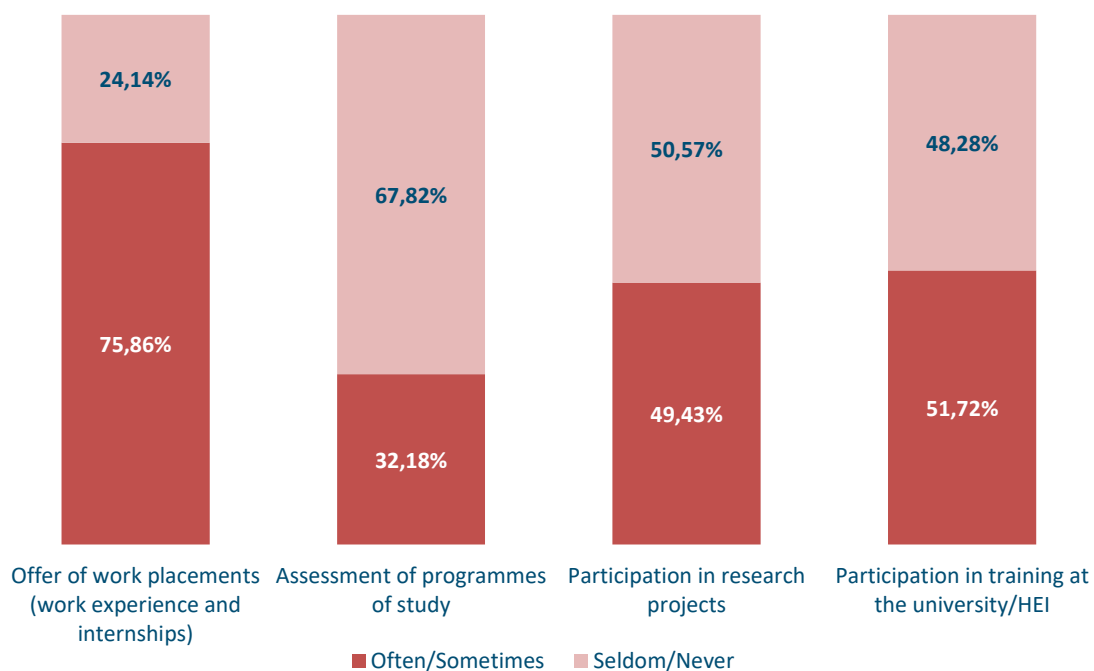
6. COLLABORATION WITH HIGHER EDUCATION INSTITUTIONS

The most frequent form of collaboration with HEIs was the offer of work placements (76%), with the least frequent being involvement in the design of curricula and study programmes (32%)

In general, and in comparison to enterprises and institutions in other private sectors, collaboration between HEIs and hospitals and other health facilities can be considered to be commonplace, as identified in the report on employers in the medical and healthcare sector.

The most frequent form of collaboration with HEIs was the offer of work placements (76%), with the least frequent being involvement in the design and/or evaluation of curricula and study programmes (32%).

Graph 17. Frequency of collaboration between HEIs and hospitals and other health facilities



7. CONCLUDING REMARKS: VIEWS OF MEDICAL SCHOOL DEANS ON THE TRAINING MODEL

Conclusions of the School of Medicine and Health Sciences, University of Barcelona (UB)

The teaching of Medicine at the University of Barcelona's School of Medicine and Health Sciences involves the application of two different learning and training systems, one that is sequential (for fundamental subjects) and another that is integrated (for clinical subjects), in which the different medical, surgical, imagery, microbiological and therapeutic fields and pathological anatomy are combined.

From the Faculty's point of view, the improvement and enhancement of teaching needs to come through the underpinning of and progress in clinical training (clinical practice), which is already being encouraged through closer and more intense collaboration with university hospitals, associated hospitals and primary health care centres.

The results of this collaboration and greater involvement on the part of medical and healthcare institutions in the development of clinical teaching will become evident in the not-too-distant future. Implementation of the supervised clinical training stage (*rotatori*) following the EHEA curriculum modification, which involves a two-month placement at a hospital and a further two months at a primary health care centre, should be crucial for bringing about a clear change in this regard. During these placements, students are fully engaged in a working group of professional practitioners and have to acquire a series of key competences (or core skills, including team work, communication, a positive attitude, problem solving and efficient use of resources) that are listed in the course programme. All of this should lead to a radical improvement in employers' perceptions of medical interns (recent graduates) compared to the current situation. In this regard, it is important to note that the survey that this document is based on was carried out in May and June 2015, i.e. prior to the first cohort of students at the UB's School of Medicine under the new curriculum.

A couple of final comments. The first being to point out the fact that the deans of the faculties and schools of Medicine stand virtually alone in calling for a medical intern exam that includes these kinds of clinical skills (precisely the ones rated the lowest by employers). The second is that an intern's academic record (transcript of records) should have more weight in his/her final grade. If this is not the case, it is difficult to see how students will pay sufficient attention to these important issues.

Francesc Cardellach López, director of the Leadership Team (Board), School of Medicine and Life Sciences, University of Barcelona UB

Conclusions of the School of Medicine, Autonomous University of Barcelona (UAB)

The curriculum of the UAB's undergraduate programme in Medicine is based on more than 40 years of experience with the degree course, it complies with the guidelines laid down in the EHEA and includes all stipulated regulatory requirements for what is a regulated profession.

It is organised on the basis of a hybrid training model, in which most courses have a parallel and sequential structure. It also takes in some of the broad fields of classical knowledge, such as Medicine and Surgery of Apparatus and Systems. One particular subject of note, Integrated Learning in Medicine, incorporates a subject from each course from year 1 to year 5, with teaching based on clinical problems and the integration of fundamental and clinical knowledge from the various areas of specialisation. A particular feature of the curriculum at the UAB is that clinical practice is present right from year 1, it continues to complement the theoretical (classroom) subjects of clinical courses and it ultimately takes up practically the entire part of year 6, together with the final-year project that incorporates skills in research.

The survey of the employability and competences of medical interns, which sets out the views expressed by the heads of hospitals and other health facilities and those in equivalent or similar positions, is an excellent initiative, although for the time being it shows the results of pre-Bologna undergraduate courses (*diplomatura*) as the first cohorts of post-Bologna EHEA-course students are only now graduating and in some cases they still haven't entered the world of work. We will have to wait and see what the impact is of the reforms introduced in the undergraduate Bachelor's programme, in terms of both the skills and competences required by medical interns and the results and outcomes of medical interns in the speciality admissions test, both during and on completion of the training stage.

The role of the medical interns' examination is a decisive aspect of the course programme and would appear to contradict the shortcomings identified. On the one hand, it is highly valued as an admission procedure, but it is obvious that it does not allow for the assessment of key competences (core skills), such as communication, collaboration and professional values, and it is in these skills and competences where there is the most scope for improvement. A change in the focus of the speciality admission exam, with the additional assessment of these skills and competences, would be a decisive factor in improving the outcomes.

Manel Armengol Carrasco, Dean, School of Medicine, Autonomous University of Barcelona (UAB)

Conclusions of the Faculty of Health and Life Sciences, Pompeu Fabra University (UPF)

Degree studies in the UPF's School of Medicine are designed to provide the comprehensive training that will be required by medical practitioners in the future, together with their successful entry into the world of work and professional advancement. Various instruments have been developed to promote the clinical and research facets of medicine, together with the humanistic aspects inherent to medical practice. In this regard, great care has been taken in curriculum design to provide the more classic aspects of clinical training together, and in particular, with a solid foundation in fundamental science, epidemiology and public health. On the other hand, different core skills and key competences are developed throughout the Bachelor's undergraduate programme in Medicine, including the search for information and other self-learning techniques, team work and communicating skills (all of which are included in a dossier of activities).

Problem-based learning plays a key role in the educational model, with particular development of subjects including various types of integrative medicine and undergraduate practicum. A tutor is also assigned to mentor the student throughout the undergraduate programme and give guidance both on a day-to-day basis as well as in their professional choice on completing undergraduate studies.

Other innovative teaching aspects include a considerable number of subjects taken together with students of Human Biology, Nursing and clinical assistants, in order to establish a common culture that will facilitate their work later on in both healthcare and research. Direct contact is also established very early on (from year 1 onwards) with clinical activities in both primary medicine and hospital medicine.

The joint assessment of different disciplines is also a characteristic of studies at UPF for better integration of knowledge. Internationalisation and student mobility are also promoted, with specific summer placement programmes in foreign medical centres of recognised standing, together with the more mainstream programmes, such as Erasmus and Seneca.

From the perspective of an introduction to research, there is a final year project, which may last up to two years and concludes with the presentation of a thesis, preferably together with a biomedical publication for which the student is a co-author. There is also a supervised clinical training stage (*rotatori*) that covers the entire final year, with requisite periods in different areas of healthcare, together with a placement of free choice in the student's preferred area of interest. The purpose of this is for students to acquire a better understanding of the medical specialities that they feel an affinity with and that may become their prospective choice for professional training and development.

All of this has helped to form a profile of professionalism that, in the two cohorts that have been examined so far, has given excellent results in the medical intern examination. It is important to note that this position does not refer just to outstanding students, but to the overall performance of the group, with the vast majority of students being placed in the top two quartiles and all students passing. This means that the majority of students have been able to follow their calling in terms of both their preferred speciality and place of training. A relatively high number of

graduates were also able to take their specialisation course in top international medical facilities. Nevertheless, we are of the opinion that the very best of our professionals will only emerge later on, in the medium and long terms, when they become fully integrated as members of staff and progress in the different health, research and academic institutions of their choice.

Joaquim Gea, Dean, Faculty of Health and Life Sciences, UPF

Conclusions of the School of Medicine, University of Girona (UdG)

The report presents the results and findings of a survey of 606 heads of hospital and primary care centres, the response for which was low ($N = 90$, 14.85%), which compromises its validity.

It also includes a graduate destinations survey of 296 medical school graduates (48.29%), six years after graduation.

Assuming that those who completed the survey are a representative sample of the heads of hospital and primary care centres in Catalonia, the following conclusions can be made:

- The factors rated most highly by heads of hospital and primary care facilities were the willingness to work flexible hours and a good command of English. The importance of English is obvious in a school of Medicine like the one at UdG, given that most of the study material provided is in English and elective courses are in English.
- As a competence, availability and willingness to work flexible hours is not dealt with specifically in programmes run in the UdG's School of Medicine.
- The skills and competences considered the most important relate to the roles of collaborator, communicator and professional. The skills and competences with most scope for improvement are those also associated with the roles of collaborator and communicator. The main teaching methodology at the UdG's School of Medicine is problem-based learning, which provides for the assessment of a student's cooperative attitude and level of responsibility. In problem-based learning, students work together and discuss as a group, they organise their work and present the findings and results of their studies in each session. We believe these three competences are sufficiently covered in the faculty.
- The survey shows that the skills and competences with the lowest mean level of satisfaction were the knowledge of health care-related support systems, skills in innovation and research, and recognising and responding effectively to uncertainty. The methodology of problem-based learning enables students to acquire skills and competences in coping with uncertainty as learning is not directed and students are not provided with content that they have to learn. A student has to decide what and how to learn and he/she is constantly faced with the uncertainty that comes from not knowing if they are using the right sources or if the information that is available is sufficient and valid. This aspect however is not assessed directly nor is there any specific activity in this regard. As regards the knowledge of health care-related support systems, there is a

module at the UdG's School of Medicine in which this issue is discussed. As for skills in innovation and research, the curriculum of the UdG's undergraduate programme in Medicine includes a final year project worth 18 ECTS credits that we believe is tailored so that students acquire the necessary knowledge and understanding in research methodologies. It is our opinion that, if the heads of hospitals and other health facilities are dissatisfied with skills in innovation and research, medical interns should possibly be allowed to work on their doctoral thesis during their residency. The university could work with hospitals and healthcare facilities that have medical interns in order to achieve this objective.

- One aspect that does need improving in the training of students in Medicine, according to heads of hospitals and primary care centres, is their skills in negotiation and decision-making. Using the methodology of problem-based learning students work as a group, conflicts are made apparent in problem-based tutorials and the students' ability to organise discussions and respectfully disagree is assessed, which are skills and competences associated with decision-making. The undergraduate programme in Medicine also has different modules with specific activities for the verbal containment of aggressive patients, managing patient complaints and communicating bad news, where students learn to be assertive and develop empathy. The findings of the survey show however that more work is needed on this competence, and associated activities need to be considered throughout the entire undergraduate programme in Medicine.
- One challenge identified in the survey is the need to establish training methods that allow for the development of skills connected with scheduling and time management, the efficient use of resources, communication, team work and positive attitude. As mentioned above, the problem-based learning methodology works on and evaluates skills in communication, team work and collaboration. There is no specific activity for efficient organisation or personal productivity. As in the majority of medical schools, it is assumed that students learn and know how to plan and manage their time in order to achieve set learning outcomes. This is an important finding of the survey. Great importance is given in the business and corporate world to productivity and efficient time management; medical schools therefore have the responsibility of ensuring that students develop these skills, either as a core focus or through specific activities.

Xavier Castells, director of the Medical Education Unit and head of the Quality Committee, UdG

Joan Sans, Dean, School of Medicine, UdG

Conclusions of the School of Medicine, University of Lleida (UdL)

The programme of study at UdL's School of Medicine is organised so that, in addition to knowledge, students acquire competences, skills and professional values, and it comprises all

of these components. As such, it is fully aligned with the main groupings of skills and competences required for professional practice for a 21st century health care system.

Collaborative work and early engagement with the real world of healthcare is promoted from year 1 onwards. Students work on communication very early on, with a specific semester-long course during year 2 and with part of the contents of Psychology in year 3. There is supervised placement (practicum) from year 2 through to year 6, which is supervised by practitioners who tutor and guide the training of students in a context of experience and reflection. Students are encouraged to participate in relating to and communicating with patients and their families by way of different oral presentations for healthcare services, where they also work on inter-professional communication. The objective is to guide students towards a holistic patient-based model of healthcare, in which safety and security are a key focus, which provides them with different areas of simulation that are beneficial to their training.

In order to facilitate clinical reasoning, the use of cases studies in different subjects is promoted and each year from year 2 to year 6 they carry out an objective clinical evaluation test (ACOE) that is conducive to reflection and generates a spirit of continuous personal improvement.

In addition to the scenarios that annually facilitate relationship with patients, and in order to work on and develop humanism and professional values, the UdL's School of Medicine runs a soft skills course aimed at solidarity work, relationship and assistance for groups that are socially marginalised and community-level participation.

ICT skills are necessary in the context of the use of the content of different subjects and joint projects on the UdL's own online platform.

Rosa M. Soler Tatché, Dean, School of Medicine, UdL

Eduard Peñascal Pujol, Head of Studies, School of Medicine, UdL

Conclusions of the School of Medicine and Health Sciences, Rovira i Virgili University (URV)

The Bachelor's course of studies at URV's School of Medicine and Health Sciences includes a series of changes to the pre-Bologna undergraduate programme, with more emphasis on demonstrating the achievement of competences, including soft skills, in any medical discipline. There was a break with the previous design of a preclinical stage during the first three years and a clinical stage in years 4 to 6. Clinical subjects were progressively introduced from year 1 onwards, where they now account for a minority, up until year 6, where the total number of 60 credits covers a supervised clinical training stage (*rotatori*). Much more importance has been given to clinical practice in all academic years and aspects of training assessment were therefore introduced, which has had an important impact on the academic record (transcript). These are instruments that are based on the observation of professional practice and the doctor-patient relationship in both real and simulated settings. More seminars were introduced and problem-based learning sessions programmed to promote self-learning, deduction and clinical judgment.

Many of these modifications were made following the analysis of the results of the objective clinical evaluation tests (ACOE), which have been in place for many years, together with the need to design more attractive courses of study with a teaching methodology adapted to the needs and requirements of a society that is ever more demanding and exposed to technological changes that continue to transform people's access to knowledge.

There are certain aspects that could not be addressed, but one should bear them in mind:

- Access and admission to medical school. In order to produce good doctors, one needs not just a good medical training programme but also the best students. Admission to the programme should be made available to those who are the best and the most vocationally inclined, and the university's current admission system offers no guarantee that this is enforced.
- Profile of the teaching staff. It is increasing difficult for medical consultants to comply with the standards of accreditation agencies as the workload makes it difficult to combine healthcare with teaching and research. This results in a scenario in which it is very complicated to obtain an ideal profile for professional staff that addresses the generational change of teaching staff. The university hospitals play a key role in this regard, and the (Government of Catalonia's) Ministry of Health should be aware of the fact that doctors and physicians at university hospitals need to be able to carry out this three-fold mission.

With regard to admission to the intern programme, we would like to make the following comments:

- Admission to specialist training is based on the results of an exam that has undergone few changes over its forty years of existence and which is predominantly theoretical.
- The efforts made by faculties and schools of Medicine to ensure that skills and competences associated with professionalism and adaptation to the demands of

present-day society are acquired is not reflected in the interns exam, where the impact of the student's transcript (academic record) only accounts for 10% of the final grade.

- The transition between training in the faculty and specialist training needs to be progressive, with best use being made of the supervised clinical training stage (*rotatori*) and the avoidance of a gap of almost a year during which time the students are just waiting to take the exam, without any kind of contact with professional practice. Having to spend a year studying for a test of one's knowledge is a noteworthy organisational dysfunction and a waste of talent.
- It is our opinion that the objective clinical evaluation test (ACOE), which is held at the end of the Bachelor's programme in almost all faculties and schools of Medicine in Spain, could become the entrance exam for specialist training. This would of course involve safeguarding its independence, reliability and objectivity, as well as equal opportunities.

Antoni Castro Salomó, Dean, School of Medicine and Health Sciences, URV

Conclusions of the School of Medicine and Health Sciences, International University of Catalonia (UIC-Barcelona)

The fact that the medical school at UIC-Barcelona has only been in existence for eight years has meant that the training model, which is based on active skills-based learning, has been able to cater for many of the best skills and competences dealt with in this report.

For example, various skills and competences that employers were least satisfied with are covered by a specific course in the programme. These include, for example, Management of Scientific Information (course 2), Fundamental Concepts in Experimental Research (course 3), Appropriate Use of Diagnostic Tests (course 4) and Decision Making in Medicine (course 4).

Other skills and competences are fostered throughout the 6-year programme. In order to ensure the learning, acquisition and assessment of key competences (core skills), we are currently completing a curriculum mapping of the same, which shows the specific moments in the degree programme where the learning and practical application of these skills and competences takes place. Our aim is to carry out a regular review of key competences to ensure that students learn, acquire and practice them.

Personally speaking, I would add a few points that do not depend on the medical schools and faculties, but which have a big effect on the learning model in graduate training and specialisation.

- a) The entrance exam to the healthcare specialists training system (SFE) for medical interns. This exam neither assesses social and relational skills and competences nor does it facilitate other important skills and competences, such as dealing effectively with uncertainty, critical thinking, prioritisation and clinical reasoning, etc.

- The use of other assessment procedures like the objective clinical evaluation test (ACOE) and/or others that provide for the assessment of these other aspects would make a great improvement. The need for this change is primordial and urgent.
- b) The annual assessment of medical interns when they are in residency should be much more rigorous and based on skills, competences and knowledge.
- It may be necessary for external review panels or another system that enhances the robustness and objectivity of assessment to be employed.
 - In addition to stricter compliance with prevailing regulations, appropriate and effective ways of dealing with unsatisfactory internships should be put in place and form part of the contract signed by the parties concerned.
- c) The mobility of medical interns between different facilities and services is regarded as being positive.
- In some specialities it is compulsory to undertake supervised clinical training in primary healthcare. In addition to this, however, in most specialities, final year interns rotate from less complex to more complex and larger health facilities. Reciprocity, which is not accounted for, would result in more positive mobility for both medical interns and health facilities (large ones as well as those that are less complex).
 - The internationalisation of certain areas of supervised clinical training needs to be promoted and better facilitated.
- d) The participation of medical interns in undergraduate training needs to be fostered and facilitated. The experience gained is always highly beneficial for all those concerned.

Albert Balaguer Santamaria, Dean, School of Medicine and Health Sciences, UIC-Barcelona

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ANNEX 1: TECHNICAL SPECIFICATIONS

Population	Universe: heads of service and academic tutors (and equivalent or similar positions) in charge of medical interns at hospitals and other health facilities in Catalonia. Population of contactable heads of service (or the equivalent or similar): 606
Methodology	Online survey (Survey Monkey).
Sample	Sample with useful responses: 90 A useful response is where responses, where applicable, were given for the full series of skills and competences.
Period	Online survey: 20 May - 2 June 2015.

Contact details were available of a total number of 606 heads of hospitals and other health facilities (and those in equivalent or similar positions) in charge of medical interns in Catalonia. The survey questionnaire (see annex 2 for more information) was sent by e-mail. As shown in the following table, 14 asked to be excluded and not participate in the study, and with 2 there was an e-mail address error. Of the rest, 469 did not respond to the survey, leaving 121 who did respond. Out of these 121 responses, 90 were considered to be useful responses, with 31 non-useful responses due to various important sections of the survey not having been completed. A "useful" response is one in which section 3 of the questionnaire (on the skills and competences of medical interns) was completed (see annex 2 for details of section 3).

Table 6. Summary of the response to the survey

	Responses
Answered	121
<i>Use</i>	90
<i>Not useful</i>	31
Unanswered	469
Asked to be excluded from the survey	14
Returned (wrong e-mail address)	2
Total	606

ANNEX 2: SURVEY QUESTIONNAIRE FOR HOSPITALS AND OTHER HEALTH FACILITIES ON MEDICAL INTERNS

The perceptions of hospitals and other health facilities regarding the skills and competences of medical interns

According to the European Commission, one of the challenges of increasing the quality of higher education is to encourage the greater relevance of the HE system to the labour market. This questionnaire, which is coordinated by AQU Catalunya and funded by Obra Social “la Caixa”, forms the basis of a study carried out to find out how hospitals and other health facilities perceive the training of recent medical school graduates undergoing specialist training (MIR) as medical interns. This information will also serve as insight for degree programmes in Medicine as regards the strengths and weaknesses of the skills and competences of medical interns.

We would very much appreciate if you could complete the questionnaire below, which should take around 10 minutes.

Many thanks for your help and cooperation.

DATABASE IDENTIFICATION DETAILS

Name of the health facility			
Type of health facility	(1) Hospital (3) Other	(2) Primary health care centre	
Address			
Service and/or speciality (e.g. Paediatrics, Radiology, etc.)			
Facility sector	(1) Public	(2) Subsidised	(3) Private

SECTION 1. INFORMATION ABOUT THE HEALTH FACILITY

<p>1. How many specialist doctors work in this facility/centre?</p> <p>2. What year did this facility begin operating? (4-digit year)</p> <p>3. Your centre/facility comes under:</p> <p>(1) Catalan Institute of Health (Institut Català de la Salut, ICS)</p> <p>(2) Public Hospital Network (XHUP) or other entities</p>

SECTION 2. SELECTION PROCEDURE FOR MEDICAL INTERNS

The questions in this section deal with the procedure for selecting medical interns.

4. How many medical interns join this faculty every year? (approximate average over the last three years)

5. How many medical interns are you in charge of at the present time?

6. Do you think that the admission procedure for medical interns is satisfactory?

(1) Not at all (2) Not very (3) Quite (4) Very (5) n/a

7. If you were involved in decision-making in the recruitment process, how would you rate (level of importance) the following factors in the selection of medical interns?

(1) Prior experience in general medicine	0	1	2	3	4	5	6	7	8	9	10	n/a
(2) Prior work experience in the same centre/facility	0	1	2	3	4	5	6	7	8	9	10	n/a
(3) A postgraduate specialist training	0	1	2	3	4	5	6	7	8	9	10	n/a
(4) Willingness to work flexible hours	0	1	2	3	4	5	6	7	8	9	10	n/a
(5) A good command of English	0	1	2	3	4	5	6	7	8	9	10	n/a
(6) Reputation of the university or facility where an intern studied	0	1	2	3	4	5	6	7	8	9	10	n/a
(7) Other factors (please specify)	0	1	2	3	4	5	6	7	8	9	10	n/a

SECTION 3. COMPETENCES

In this section please rate, firstly, the **importance of** and, secondly, your **degree of satisfaction** with the training and skills and competences of the medical interns in your facility/centre.

8. Rate, from 0 to 10, the **importance** of the following skills and competences of the medical interns you are in charge of and your **level of satisfaction** with each skill or competence in professional practice (0 for not at all important or dissatisfied and 10 very important/very satisfied).

Training for medical practice

Level of importance / Level of satisfaction

- | | |
|--|---------------|
| (1) Understanding of the fundamental scientific principles of medicine | / |
| (2) Diagnosis, prognosis and treatment of patients | / |
| (3) Clinical judgments and decisions based on available evidence | / |
| (4) Knowledge of health care-related support systems | / |
| (5) Recognize and respond effectively to uncertainty | / |
| (6) Health promotion, protection and prevention | / |

Interpersonal skills

Level of importance / Level of satisfaction

- | | |
|---|---------------|
| (7) Team work | / |
| (8) Leadership | / |
| (9) Negotiation and decision-making | / |
| (10) Positive attitude and motivation | / |
| (11) Ability to establish communicate effectively (both oral and written) with patients, their families and friends | / |

Personal management skills

Level of importance / Level of satisfaction

- | | |
|--|---------------|
| (12) Scheduling and time management | / |
| (13) Learning capacity and self-learning | / |
| (14) Adaptability | / |
| (15) Problem solving | / |
| (16) Ability to work autonomously | / |
| (17) Efficient use of available resources and the avoidance of waste | / |

Instrumental skills

Level of importance / Level of satisfaction

- | | |
|--------------------------|---------------|
| (18) Languages | / |
| (19) Use of ICT | / |
| (20) Research techniques | / |

Attitude and professional ethics

Level of importance / Level of satisfaction

- | | |
|--|---------------|
| (21) Practitioner of the values of the medical profession | / |
| (22) Respect for the right of patients as regards participation, information and autonomy and informed consent | / |
| (23) Respect for the opinions, beliefs, intimacy and confidentiality of others | / |
| (24) Responsibility for one's own personal development through continuous medical training | / |

9. Rate, from 0 to 10, your **overall level of satisfaction** with the following skills and competences of the medical interns you are in charge of (0 for not at all important or dissatisfied, and 10 very important/very satisfied).

0 1 2 3 4 5 6 7 8 9 10 n/a

10. If you wish to make any comment or remark regarding your answers to the questions in this section, please do so in the space provided below.

SECTION 4. COLLABORATION WITH HIGHER EDUCATION INSTITUTIONS

The questions in this section deal with collaboration between your medical facility and higher education institutions.

11. How often does your facility/service participate in activities involving **collaboration with higher education institutions**?

(1) Offer of work placements (work experience and placements)	Never	Not very often	Fairly often	Very often	n/a
(2) Communication with HEIs in the assessment of programmes of study	Never	Not very often	Fairly often	Very often	n/a
(3) Participation in research projects	Never	Not very often	Fairly often	Very often	n/a
(4) Participation in training at HEIs	Never	Not very often	Fairly often	Very often	n/a

12. What kind of activity would you be willing or would like to collaborate in with HEIs? (Either choose options from the above list or others)

SECTION 5. INDUCTION AND TRAINING FOR MEDICAL INTERNS

The questions in this section deal with graduate induction and training for medical interns at your health facility/service.

13. Does your health facility or service provide induction and training for medical interns?

- (1) Yes Go on to question 13.1
- (2) No Go on to question 14
- (3) n/a Go on to question 14

13.1. If you answered "Yes" to the above question, state the type of training. (Where applicable, choose more than one option)

- (1) Provision of a mentor or tutor
- (2) *Ad hoc* training sessions
- (3) Training courses outside the hospital/centre
- (4) Pre-contract placement/work experience
- (5) Others (open)

SECTION 6. INNOVATION STRATEGY

The questions in this section deal with different features of your medical facility and/or service in reference to innovation.

14. With regard to the facility and/or service, over the last three years have any new developments been introduced as regards:

- | | | | |
|---|-----|----|-----|
| (1) Important changes in technology: new equipment/software | Yes | No | n/a |
|---|-----|----|-----|

(2) New forms of association with other medical and healthcare facilities (cooperation agreements, networking, etc.)	Yes	No	n/a
(3) Cooperation agreements with medical/healthcare facilities abroad	Yes	No	n/a
(4) Quality enhancement project	Yes	No	n/a
(5) A strategic plan at hospital, facility and/or service level	Yes	No	n/a

SECTION 7. DETAILS OF THE INFORMANT (PERSON COMPLETING THE SURVEY)

What is your position in the health facility or service?

(1) Director/head of service of (2) Attending physician or supervisor

Since when have you held this position in this facility/service? (4-digit year)

If AQU Catalunya requires more information on this matter, would you be willing to collaborate?

(1) Yes (2) No

Please provide:

- your name and surname

- your e-mail address

Many thanks for completing the survey questionnaire.

ANNEX 3: EDITORIAL TEAM

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