What Should Doctors Know?

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Abstract

Delors has established some of the pilasters of education that include learning to know, learning to do, learning to be, and learning to live together and that can be applied to medical school students. More specifically, knowledge is the first important skill students must develop in order to start becoming doctors. The present paper, considering exclusively medical degree courses, focuses on assessing the different educational English language needs of medical students and investigates to what extent such needs are satisfied. To address these issues, a survey was carried out using the Internet to look into all the different Italian universities and to see what each of them offers in terms of English language teaching. English courses in Italian medical schools as they appear today from the present survey seem to be useless. They cannot fulfill the particular needs of medical school students and even less of medical doctors. A unified program is necessary for all Italian medical schools, and English should be taught through specific pathways for each individual student.

Keywords: Medical English, English as a Special Language, medical school students, English teaching program, educational needs, medical school in Italy

Introduction

Delors has established some of the pilasters of education and the first concern, when approaching teaching, is target (Delors, 2013). In this context, target in the present paper refers to medical school (MS) students, aged 19 or over, who have just graduated from high school, and all have different backgrounds in terms of English language. English courses are usually at first year of MS, when students have no medical notions and therefore they do not know technical language not even in Italian, let alone in English. They do not have any idea of what being a doctor means. Some can speak fairly good English, others know the grammar, and others know how to read. Most of them do not understand correct Standard English and none of them know how to pronounce or spell medical terms. When teaching a language, any language, attention should be paid to the four language skills – listening, speaking, reading, writing, and translating should be added when teaching a second

language. Some doctors may need to understand and talk to foreign patients and colleagues but talking with colleagues necessitates a certain syntax and terminology – Ali's technical fluency, while talking with patients requires another type of register and syntax (Ali, 2003). After graduation, some doctors might want to go outside of Italy, and so they should know also standard language in order to be able to survive in a foreign country – what Ali defined as - ordinary fluency (Ali, 2003). Therefore, after six years of MS, doctors can work, but if they want to enter the Italian Health System, they must either take a two-year course to become family doctors, or stay in universities and take five more years to specialize in one of the branches of medicine. Later some of these might enter a PhD program, and the language needs increase, because they may participate to international congresses and so they must practice writing a presentation, presenting it and making and answering questions. In all Italian MS, English language course is mandatory; however, no uniformity exists among the courses in the different universities, resulting in diverse educational achievements by medical students. The present work assesses the different educational English language needs of medical students, focuses exclusively on medical degree courses and investigates to what extent such needs are satisfied. To address these issues, a survey was carried out using the Internet to look into all the different Italian MS and see what each of them offers in terms of English language teaching.

Language Needs of Medical School Students:

Language learning is an inductive process for a human being. Therefore, its acquisition is natural and does not require any particular type of training (Gollin, 1998). However, when teaching a second language, especially to adults, a number of mechanisms and strategies must be undertaken in order to achieve good results, especially teaching and training students on all language skills (listening, speaking, reading, writing and translating) (Howatt, 1984; Krashen & Seliger, 1975; Larsen-Freeman, 1991). Unfortunately, to the best of my knowledge, no researches have investigated either the language needs of MS students in Italy or the role of English teaching and English itself in non-English speaking countries. MS in Italy offer four main types of degrees: medical degree, specializations, doctorate degrees, and post-doctorate programs. Obviously, the language requirements in these many forms of training are different.

Medical Degree

In Italy, medical training is provided by MS in the various Universities, which accept a number of students as established and programmed by the Italian Ministry of University for each MS (Table 1). Students who wish to enter MS must first pass an extremely hard selection through a tough entrance test before being admitted into MS. The entrance test is administered on the

same day throughout Italy and yields a graded list based on the score obtained in the test. Thus, students choose the MS where they want to undertake their training based on their position in the list. While the first on the list chooses the MS first, the second chooses second, and so on.

The medical course itself lasts six years and, as already explained in the previous section, a number of requirements are necessary for any student to become a medical doctor. After graduating from the six-year training program, students are faced with two choices: either going into a two-year course to become a family doctor, or take another entrance test to be admitted into one of the many specialization schools, which takes another five years. It is clear that the language demands and requirements of these two groups of students are completely different. A family doctor in Italy has patients from 18 years old on because before that age, children have pediatricians (Brekke, 2013).

The demands for English are extremely reduced because the main activity of a family doctor is to follow the patients in their prevention, diagnostic, and therapeutic needs. Prevention consists of advising patients, based on their gender and age, on the different prevention tests and treatments that the patient should be subjected to in order to prevent major diseases such as cancers. The diagnostic work carried out by family doctors involves two principal actions: prescribing laboratory and/or imaging tests in order to begin to get oriented into the patient's possible disease, and referral of patients to specialists (Soler, 2008). Of course, all these processes and actions are performed in Italian, and the only skill the doctor might require in relation to English is talking with a foreign patient (Carelli, 2016). Foreign and non-Italian speaking patients are extremely rare. This is because most foreigners who have access to a family doctor have been living in Italy long enough to have learnt enough Italian to be able to speak with the doctor; otherwise, they may be accompanied by compatriots who can translate. In extreme cases, interpreters and cultural mediators can be hired, but this is extremely rare.

Consequently, in these conditions, family doctors necessitate English only to the extent to which they may access international literature for purposes of studying and updating. Subsequently, the only language skill they should have acquired is reading. It must be noted that in Italy, family doctors do not undergo any career progression and are hired according to a ranking that considers almost exclusively the years from graduation from medical schools and the work actually done in the Italian Public Health system, not taking into account neither publications nor experiences in foreign countries (Peluso, 2012).

Specializations

Table 2 reports all specializations that medical doctors can undertake in Italy, involving all branches of medicine, surgery, and service medicine. All

specializations are offered by MS in the various universities and each university can accept only a certain number of specializers as established and programed by the Italian Ministry of University. Medical doctors have access to specializations through an entrance test and like for MS, it is administered on the same day throughout Italy and yields a graded list based on the score obtained in the test. So medical doctors choose the MS where they want to obtain their specialization based on their position in the list. Thus, the first on the list chooses the MS first, the second chooses second, and so on.

Different from MS students, specializers are paid since they provide health care in the various hospital wards partnered with their MS. They are actual doctors working. Based on the different specializations, the duties of these doctors are to collect history, make diagnosis, perform surgical operations, and/or set therapies for those patients having diseases that cannot be handled by family doctors and that require hospitalization. They work while they learn and they learn while they work. Specializations last five years and, during this period, only a negligible number of doctors actively initiates research activities.

After five years, doctors are specialized and, as specialists, they can work in public or private hospitals and day care structures and in their own private surgeries. The Italian Health System hires specialists based on a '*concorso'*, which is a selection executed by taking into consideration specialization grade, past working experiences, and lastly publications (in some '*concorso'* no difference is made between Italian and English publications) (Corposanto, 2009).

In terms of English language needs, like family doctors, these specializers and specialists might require talking with foreign patients who do not understand Italian. Thus, it is important to note that due to the very nature, use and utility of hospitals, specializers and specialists encounter foreign patients more often than family doctors do. As previously stated, in those very rare extreme cases in which the patients are unable to speak with the doctors, interpreters and cultural mediators intervene. Career progression of these doctors is almost automatic. Thus, it is based on the number of years they have been working in the hospital, in that particular field, '*anzianità'*, while again, publications are negligible (Esposito, 2017). It is noteworthy that like family doctors, specializers and specialists-hospital doctors could train only their reading skill for studying and updating purposes. In addition, neither family doctors nor hospital doctors are asked to participate neither actively nor passively in international congresses.

Doctorate and Post-doctorate Programs

After having specialized, doctors might also choose to stay in universities and attempt an academic career. In Italy, three academic positions

exist: assistant professors, associate professors, and full professors. To become an assistant professor, the first prerequisite is to have a PhD, whose programs are provided by all MS and they usually last two years. During these years, doctors are asked mainly to continue with their hospital work but also to start training in the art and profession of research and teaching. As a result, they begin to be acquainted with the various research methodologies involving both basic and clinical sciences and they begin to learn how to survey international literature and write a scientific paper (Odone, 2017). During these two years, doctors participate in international congresses so they can start getting familiar with institutions outside Italy and with international literature. Some of them visit hospitals and research institutions outside Italy.

Post-doc programs vary according to the specific fields, having different durations and different aims and engaging doctors who continue their academic career. In terms of English needs, these doctors should train all language skills. First, they are obliged to reach an excellent level of knowledge of Standard English to enable them to live in a foreign country where they might be hosted for various reasons. Second, they must be able to understand and talk with patients, paramedics, and nurses and they are required to communicate with their colleagues both in hospital environments and in international congress settings. Third, they must know how to read and understand international literature for both updating and research purposes. Finally, they should practice writing a scientific paper addressed to either international scientific journals or international congress proceedings.

Materials and Methods:

The present paper focuses exclusively on medical degree courses and excludes specializations, doctorate and post-doctorate programs. In order to investigate to what extent the different educational English language needs of medical students are satisfied, a survey was carried out using the Internet to look into all the different Italian universities and see what each of them offers in terms of English language teaching. The Internet search was done entering into the website of each of the 40 universities hosting MS, and two items were evaluated: 1) Educational Objectives; and 2) Study Plan (*piano di studi*). The Educational Objectives (Annex 1) are derived from the five Dublin descriptors that were established in 2004 in the attempt to have a comprehensive and consistent educational plan in all European universities (Table 3). The Study Plan describes all the single courses for each of the six years with credits, professors, programs, etc. Table 4 reports all the single items that were considered for each MS. The number of students, the minimum, the maximum, and the mean number of credits that are reserved for English teaching were calculated. In this context, the maximum number of credits in a year was also counted. It must be noted that each credit corresponds to approximately 12,5

hours of in-class teaching. The year or the years in which English teaching is executed were included. Moreover, whether English is a single course or it is "integrated" with other courses, and if there is a dedicated professor or if the course is done by the university language center, were also explored. Finally, partnerships with other language institutions were also appraised. Other elements that seemed crucial to evaluate were the actual program of the course, the presence of a placement test, recognition of credits from previous courses, standard language teaching, and/or medical scientific English teaching. The courses that yield either a grade (18/30) or simply pass/fail judgements were also determined for each MS.

Results:

Educational Objectives of Medical Schools in Italy

Table 3 reports the five European descriptors established in Dublin, while Annex 1 reports the modifications by Italian MS. All 40 Italian MS more or less have the same objectives derived and revised from the indications and descriptors established by the European Union, with only negligible differences among the Italian universities. The educational objectives are:

"*The medical degree course includes 360 Credits, articulated into six years, at least 60 of such credits should be acquired in practical training activities aimed at maturation of specific professional capacities (professionalizing CFUs). The specific mission of the medical course is biomedical and psychosocial aimed at the true development of professional competence and medical values. The mission is founded on the importance of integrating the biomedical paradigm of curing the disease with the psychosocial paradigm of taking care of the human being in the metaparadigm of the complexity of care. This specific mission is therefore aimed at training a doctor, at an initial professional level, who possesses: - a multidisciplinary, inter-professional and integrated vision of the most common problems of health and diseases; - an education aimed at disease prevention and health promotion within the community and the territory; - a profound knowledge of the new requirements for care and health, centered not only on diseases, but, above all, on persons, considered in their entirety of body and psyche, according to their specificity of gender, population, and inclusion in a specific social context. The teaching method adopted is useful for achieving the expected qualifying characteristics provided for the horizontal and vertical integration of knowledge. Such a teaching method considers solid cultural and methodological bases and is aimed at the study of pre-clinical disciplines. Subsequently, it is mainly centered on skills to solve problems and make decisions on early contact with the patient, on the acquisition of good clinical skills, and on the human relationship with the patient. The right balance of vertical and transversal integration between: 1) basic sciences, which must be broad and include knowledge of evolutionary biology, molecular biology, genetics and biological complexity, is proposed in the teaching project aimed at the knowledge of the structure and function of the human body in normal conditions, for the purpose of maintaining health and for the correct application of translational scientific*

research; 2) knowledge of the morbid processes and the mechanisms that cause them so as to set up prevention, diagnosis and therapy and also from a gender perspective; 3) clinical and methodological medical practice, which must be particularly solid, through a wide use of tutorial teaching capable of transforming theoretical knowledge into personal experience in such a way as to build their own scale of values and interests, and also acquire the professional skills useful for managing the complexity of medicine; 4) the human sciences, which must constitute a useful background to achieve awareness of being a doctor and of the profound values of the doctor's professionalism; 5) the acquisition of the scientific, medical, clinical and professional methodology aimed at the health problems of the individual and the community, with due attention to population and sex/gender differences. The expected learning outcomes are defined here by integrating the European Descriptors (5 Dublin Descriptors) with what is proposed by the Institute for International Medical Education (IIME), Task Force for Assessment, and by The TUNING Project (Medicine) - Learning Outcomes /Competences for Undergraduate Medical Education in Europe" (Dublin, 2004).

In terms of English language teaching, among the five Descriptors noteworthy are Descriptor 4 and 5. Descriptor 4: Communication skills—Does not mention in any way communication with foreign patients, paramedics or peers and English language and/or specifically scientific-medical English are mentioned only in Descriptor 5: Learning skills. Indeed, the Descriptor reports: "*For learning skills, particular attention is paid to communication, also in English, and to IT and multimedia methodologies that facilitate critical reading of scientific articles, and also for the future ability to continuously update. Speaking and writing fluency in a European language other than Italian*".

Over the 40 universities evaluated, only one (2,5%) of the MS considers English teaching a prerequisite for the acquisition of good communication skills, while 37 (92,5%) do not mention it, and for or 2 (5%), it was not possible to find out because it was not reported on their websites. Concerning Learning skills, only 13 (32,5%) of the 40 universities consider English language a useful tool for permanent life-long learning, while 25 (62,5%) do not mention it, and for or 2 (5%), it was not possible to find out because it was not reported on their websites.

Study Plans in Medical Schools in Italy

Table 4 reports all the items that were evaluated for the English courses in each MS. The number of students accepted in the MS evaluated goes from a minimum of 70 to a maximum of 985, with a mean number of students of 260,25. Concerning the number of credits each of which corresponds to 12,5 hours of in-class teaching, the minimum number of credits is 3 corresponding to 37,5 hours (6 universities). On the other hand, the maximum number is 12 credits corresponding to 150 hours (2 universities), with a mean number of credits of 5,8, corresponding to 72,5 hours. Furthermore, the minimum number of credits in one year is 1, corresponding to 12,5 hours (1 university), while the maximum number of credits in one year is 8, corresponding to 100 hours (3 universities).

Table 5 depicts the year/years in which English is taught for each university. English is taught throughout almost all six years of MS. Majorly, it is taught first year of MS in 34 universities (85%), second year in 13 universities (32,5%), third year in 6 universities (15%), fourth year in only 3 universities (7,5%), and fifth year in only 1 university (2,5%). In 12 universities (30%), English is taught in more than one year.

Concerning the English course itself, variegated data were found. Indeed, 9 English courses (22,5%) are part of larger multiple courses (*corso integrato*) in which the students receive one single grade that represents the mean of all the grades received in each module part of the multiple course. Twenty-nine (29) courses (72,5%) are held as single courses where students receive a single judgement based only on the English course itself. Among these, 21 (72,4%) are taught by one or more professors, 7 (24,1%) courses are done by the university language center, and 1 (3,4%) is an online course. For 2 universities (5%), it was not possible to find out because it was not reported on their websites. Finally, one university (2,5%) has a permanent partnership with an outside language institution where students can take additional English courses.

Six (6) courses (15%) submit students to a placement test to find out their level of English knowledge, while 31 (77,5%) do not require it. For 3 universities (7,5%), it was not possible to find out because it was not reported on their websites. Furthermore, 8 universities (20%) accept language recognitions from institutions outside the university, while 20 (50%) do not accept them. Finally, for 12 universities (30%), it was not possible to find out because it was not reported on their websites. Twenty (20) universities (50%) teach medical and/or scientific English in various declinations. Of these 20 universities, 19 (95%) have mixed programs of standard language/medical English, while only 1 (5%) teaches exclusively medical English. On the other hand, only 3 (7,5%) teach exclusively standard language. For 17 universities (42,5%), it was not possible to find out because it was not reported on their websites.

The way students are judged either with a grade (from minimum 18 to maximum 30 cum laude) or pass/fail judgements: 33 universities (82,5%) use pass/fail judgements, while 17 (42,5%) give grades at the time of final examination. For 8 universities (20%), it was not possible to find out because it was not reported on their websites.

Discussion:

The results obtained from the present survey show that the 40 Italian MS have more or less the same Educational Objectives and the same Language Educational Objectives. Almost all universities have a specific file published on their websites in which all the Educational Objectives each medical student

must fulfill in order to become a doctor are reported. The present survey focused mainly on Descriptors 4 and 5 of the Educational Objectives that concern English language and language teaching in general, and Communication and Learning Skills students must acquire in order to become medical doctors. In the Educational Objectives of almost all MS, the following statement is reported "*Speaking and writing fluency in a European language other than Italian*". This statement is in direct contradiction with the fact that only 1 (2,5%) of the medical schools considers English teaching a prerequisite for the acquisition of good communication skills. This is an extremely alarming datum since languages are the only communication means human beings use. This datum is also in contradiction with some of the Study Plans observed, which require B1-B2 level of English, as has been set by the Common European Framework of Reference for Languages (Table 6) (North, 1995; North & Schneider, 1998; North, 2007). In the Educational Objectives, only 13 (32,5%), less than half of the MS, consider English language a useful tool for life-long learning. This observation is puzzling since international scientific literature is the only literature accredited by the international scientific community and by the Italian scientific community and it is almost all written in English. However, the data seem to show that for the MS evaluated, English language is not necessary for life-long learning.

Concerning the Study Plan, the first element that was taken into consideration is the number of students each MS accepts each year. The survey has yielded a mean number of students of 260,25, meaning that each class contains a number of students that cannot be adequately handled for language teaching goals. Furthermore, the mean number of credits each MS provides for English courses is 5,8. It must be noted that each credit corresponds to 12,5 hours. As a result, the mean number of hours of in-class English lessons is 72,5 hours. According to the Common European Framework of Reference for Languages, 120 hours of lessons are recommended for an A2 student to reach Level B1. In these conditions, if students enter MS at an A2 level, with 72,5 hours, they will probably be able to reach only B1.1 level (Table 6). From the data collected, it seems that the number of credits assigned to English courses is clearly insufficient to teach students any English (North, 1995; North & Schneider, 1998; North, 2007).

It is important to note that only 3 (7,5%) MS teach exclusively standard language and half of them have mixed programs - standard language/medical English. However, 85% of MS teach English during the first year; this is somewhat bewildering and inconsistent since first year students do not have any knowledge of medicine and therefore do not know medical language not even in Italian let alone in English. Furthermore, it is interesting to note that 82,5% of the MS give only a pass/fail judgement, indicating that students can put the minimum effort into this subject because the minimum is all that is

required for them to pass the exam. Moreover, the absence of a grade means that the course and the judgement have no effect on the final graduation grade received by the doctor, which is important to gain access to specializations and doctorate programs. Thus, the English course seems to retain no importance for the future of the doctor.

Conclusion

The present paper reports on a survey carried out on the Internet to evaluate the state of the art in terms of English language teaching in Italian MS. For the 40 universities considered, two elements were studied in depth: 1) the Educational Objectives as derived and modified from the 5 Descriptors that were established in Dublin in 2004 and applied by the all European countries; and 2) the Study Plan (*piano di studi*) (Dublin, 2004). There seems to be a lack of agreement between what the European Union asks and what is actually taking place in Italian universities. It is interesting to note that none of the 40 universities collocate English teaching with a Communication Skill. Only 13 (32,5%) out of 40, much less than half, include English language among the Learning Skills and continuing education. Most universities state that English is important for the life of a medical doctor but they reserve only a mean of 72,5 hours to teach this language. No unified programs exist throughout the 40 universities assessed, and the courses that attempt to teach medical English seem to be destined to fail because first year MS students have no notion of medicine. As a result, they do not know its language not even in Italian, let alone in English.

Medical students have specific language needs that do not seem to be satisfied by the courses and the programs evaluated. Such specific needs involve mainly studying and updating through international scientific and medical literature for purposes of life-long education (Stem, 1983; Stern, 1992). Based on our target and their backgrounds, the attempt to fulfill such specific needs is practically impossible if they were seen in light of the data yielded in the present survey: English professors are alone, in most cases with no language teaching technological support, teaching in classes with a mean number of students of 260,25, and the credits each course is assigned with are a mean of 5,8, corresponding to 72,5 hours.

In sum, English courses in Italian MS as they appear today from the present survey seem to be useless. They do not seem, in any way, to fulfill the specific needs of MS students and even less of medical doctors. A unified program is necessary for all Italian MS, keeping in mind that it is not the duty of MS to teach languages. MS train doctors and, therefore, English should be a collateral, important, and a supportive activity that should be taught with specific pathways for each individual student. The university language centers should offer diversified courses that respond to the different needs of the

students (North, 1995; North & Schneider, 1998; North, 2007). The role of English courses in MS should not be to teach the language but through the language, they should contribute to training doctors. Therefore, once the students have reached their C2 Level, as certified by the university language centers, the English professors, who should teach during the last years of MS, should train students to access scientific and medical international literature to reach a good level of knowledge of scientific and medical English, in order to study and update life-long. Besides reading and understanding, all the other language capacities related to scientific and medical English should be trained elsewhere like in specializations, doctorate and post-doctorate courses, based on the specific needs. In Italian MS, this seems to be the only way English courses can give their specific and unique contribution to training doctors. Future studies are necessary to investigate and set comprehensive programs aimed at unified teaching goals.

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Table 1 - Italian universities housing medical schools and the number of students accepted each year.

Bari – 297
Bologna – 364
Brescia – 223
Cagliari – 238
Catania – 400
Catanzaro – 280
Chieti-Pescara – 186
Ferrara – 596
Firenze – 365
Foggia – 99
Genova – 275
L'Aquila – 137
La Campania Valvitelli – 550
Marche - 205
Messina – 331
Milano – 400
Milano Bicocca – 155
Milano San Raffaele – 300
Modena e Reggio Emilia – 175
Molise – 94
Napoli Federico II - 557
Novara Piemonte Orientale - 194
Padova – 334
Palermo – 417
Parma – 240
Pavia – 244
Perugia – 301
Pisa – 288
Roma Campus Biomedico – 140
Roma Cattolica – 135
Roma La Sapienza – 985
Roma Tor Vergata - 220
Salerno – 154
Sassari – 138
Siena – 244
Torino – 70

Trieste – 180
Udine – 148
Varese Insubria – 150
Verona – 197

Table 2 - Specializations with the number of doctors accepted each year by Italian universities

MEDICINE	SURGERY	SERVICES
Allergology and Clinical immunology: 115 Dermatology: 144 Hematology: 220 Child Neuropsychiatry: 190 Community Medicine and Primary Care: 69 Cardiology: 635 Gastroenterology: 198 Pneumology: 371 Emergency Medicine: 905 Endocrinology and Metabolic Diseases: 185 Food Science: 72 Geriatrics: 405 Infectious and Tropical Diseases: 339 Internal Medicine: 793 Medical Oncology: 317 Nephrology: 246 Rheumatology: 121 Neurology: 303 Pediatrics: 600 Psychiatry: 432 Sports Medicine: 79 Thermal Medicine: 3	Cardiac Surgery: 96 General Surgery: 673 Gynecology and Obstetrics: 500 Maxillofacial Surgery: 67 Neurosurgery: 106 Ophthalmology: 210 Otolaryngology: 190 Orthopedics Surgery: 484 Pediatric Surgery: 75 Plastic Surgery: 100 Thoracic Surgery: 80 Urology: 227 Vascular Surgery: 136	Anesthesia, Resuscitation, Intensive and Pain Therapy: 1649 Audiology and Phoniatrics: 44 Clinical Pathology - Biochemistry: 219 Forensic Medicine: 158 Health Statistics and Biometrics: 28 Hygiene and Preventive Medicine: 575 Medical Genetics: 70 Nuclear Medicine: 91 Occupational Medicine: 188 Pathology: 158 Microbiology and Virology: 122 Pharmacology-Clinical Toxicology: 85 Physical-Rehabilitation Medicine: 277 Radio-diagnostics: 729 Radio-therapy: 176

Table 3 - Dublin Descriptors

	Knowledge and Understanding
1. Bachelor	[Is] supported by advanced text books [with] some aspects informed by knowledge at the forefront of their field of study..
2. Master	provides a basis or opportunity for originality in developing or applying ideas often in a research* context ..
3. Doctorate	[includes] a systematic understanding of their field of study and mastery of the methods of research* associated with that field..

	Applying Knowledge and Understanding
1. Bachelor	[through] devising and sustaining arguments

2. Master	[through] problem solving abilities [applied] in new or unfamiliar environments within broader (or multidisciplinary) contexts ..
3. Doctorate	[is demonstrated by the] ability to conceive, design, implement and adapt a substantial process of research* with scholarly integrity .. [is in the context of] a contribution that extends the frontier of knowledge by developing a substantial body of work some of which merits national or international refereed publication ..

	Making Judgements
1. Bachelor	[involves] gathering and interpreting relevant data ..
2. Master	[demonstrates] the ability to integrate knowledge, handle complexity, and formulate judgements with incomplete data ..
3. Doctorate	[requires being] capable of critical analysis, evaluation and synthesis of new and complex ideas..

	Communication Skills
1. Bachelor	[of] information, ideas, problems and solutions ..
2. Master	[of] their conclusions and the underpinning knowledge and rationale (restricted scope) to specialist and non-specialist audiences (monologue) ..
3. Doctorate	[with their peers, the larger scholarly community and with society in general (dialogue) about their areas of expertise (broad scope)..

	Learning Skills
1. Bachelor	have developed those skills needed to study further with a high level of autonomy ..
2. Master	study in a manner that may be largely self-directed or autonomous..
3. Doctorate	expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement ..

Table 4 - Items investigated for each medical school

Descriptor 5: Educational Objectives
Communication Skills
Learning Skills
Study Plan
Number of Students
Number of Credits
Year/Years
Single vs. Multiple Course
University Language Center vs. Professor
Partnership with other Institutions
Placement Test
Recognition of Credits from Previous Courses
Medical English
Standard Language
Pass/Fail vs. Grade

Table 5 - Year/Years of English course for each medical school

Year	No. of U
1	34
2	13
3	6
4	3
5	1

Note: The total number is not 40 because some universities offered English courses for more than 1 year

Table 6 - Hours necessary to reach the different levels of English according to the Common European Framework of Reference for Languages

LEVEL		**HOURS**
A1.1	A1	30
A1.2		30
A2.1	A2	30
A2.2		30
B1.1	B1	30
B1.2		30
B1.3		30
B1.4		30
B2.1	B2	30
B2.2		30
B2.3		30
B2.4		30
C1.1	C1	60
C1.2		60
C1.3		60
C2	C2	180

Annex 1 - Descriptors

Descriptor 1: Knowledge and Understanding

Graduates must have knowledge and understanding skills to be able to describe and correlate the fundamental aspects of the bio-molecular, macro and microscopic structures, of the functions and pathological processes, as well as of the main disease pictures of the human being. They must demonstrate understanding of the principles and ability to argue based on the social and economic nature as well as the ethical foundations of human and professional action in relation to the issues of health and disease. In this regard, graduates: - will be able to correlate the normal structure and functionality of the organism as a complex of continuously adapting biological systems, interpreting the morpho-functional anomalies found in various diseases; - will be able to identify normal and abnormal human behavior, being able to indicate the determinants and main risk factors of health and disease and of the interaction between the human being and his physical and social environment with attention to sex differences / gender and population; - will be able to describe the fundamental molecular, cellular,

biochemical and physiological mechanisms that maintain the homeostasis of the organism, being able to describe the life cycle of the human being and the effects of growth, development and aging on the individual, family and on the community with attention to sex / gender and population differences; - will be able to illustrate the origin and natural history of acute and chronic diseases, having the essential knowledge relating to pathology, pathophysiology, epidemiology, health economics and the principles of health management. Consequently, they will also have a good understanding of the mechanisms that determine the equity of access to healthcare, the effectiveness and quality of healthcare itself in relation to existing sex / gender differences; - will be able to interpret the global needs of patients and their families, from a biopsychosocial perspective at any stage of the path of a disease, through competent communication and with an interdisciplinary approach, which also takes into account the cultural factors that modulate the relationships between patient, family, and illness. They will also be able to discuss clinical problems by addressing the diagnostic and therapeutic process, considering the centrality of the patient and the knowledge of pain therapy in consideration of evidence-based medicine; - will be able to correlate the principles of drug action with their indications, paying attention to sex / gender and population differences, to describe the main diagnostic, surgical and physical, psychological, social and other diagnostic interventions gender, in acute and chronic illness, in rehabilitation, prevention and end-of-life care; - will be able to list and discuss the main determinants of health and disease, such as lifestyle, genetic, demographic, environmental, socio-economic, psychological and cultural factors in the population as a whole. Such knowledge will be correlated to the state of international health and to the impact on it of globalization; - will be able to discuss the essential elements of professionalism, including the moral and ethical principles and legal responsibilities that are the basis of the profession; - will be able to discuss clinical problems by addressing the therapeutic diagnostic process in the light of the principles of evidence-based medicine, as well as the knowledge of pain therapy and symptoms that affect quality of life, including the area of palliative care in its various contexts. Knowledge and understanding was developed over the six years of the degree course, thanks to the teaching method implemented which is interactive and multidisciplinary and provides for the daily integration of basic sciences and characterizing disciplines. This is thanks to an early clinical involvement of the students, who, from the second year of the course, are oriented towards a correct approach through the psycho-social anamnesis at the patient's bed, and with the acquisition of semeiology techniques on mannequins. The choice of the specific objectives of the basic courses is also decisive for knowledge, made primarily on their relevance in the framework of human biology, and on their preparatory status with respect to current or foreseeable clinical issues. This is with particular attention to the component concerning the scientific methodology associated with the choice of specific objectives of the characterizing courses acquired primarily "in the field" with attendance in hospital wards and outpatient clinics of territorial structures. Hence, these structures allow the enhancement of the relationship with the patient and also, from the psychological aspect, according to the concept of holistic medicine (whole person medicine).

Descriptor 2: Applying Knowledge and Understanding

Graduates must be able to apply their knowledge to the understanding and resolution of health problems of individuals with attention to the specificity of gender, groups, and populations. This is also relevant to new issues that are inserted in broad and interdisciplinary contexts. Clinical skills must be aimed at addressing the complexity of the health problems of the population, social groups, and the individual patient—a complexity that is characterized in the dimensions of personal data, multiple pathology, and the intertwining of biological, sociocultural and gender-specific determinants. For these purposes, graduates: 1) will be able

to correctly collect a clinical history, complete with social aspects, and carry out an examination of the physical and mental state. They will be able to apply the principles of clinical reasoning, know how to perform basic diagnostic and technical procedures, analyze and interpret the results to correctly define the nature of a problem, and correctly apply the appropriate diagnostic and therapeutic strategies; 2) they will be able to establish diagnoses and therapies in the individual patient, also in consideration of gender-specific differences, recognizing any condition that puts their life in imminent danger, knowing how to correctly and independently manage the most common medical emergencies; 3) will be able to treat diseases and take care of patients in an effective, efficient, and ethical way by promoting health and the recognition of pain and its treatment even in the advanced and terminal stages of life, fulfilling the moral obligation to provide medical care, including palliative therapies for symptoms, pain, and existential suffering from a biopsychosocial and person-centered perspective. They will therefore be aware of the limit of treatment, especially in chronic degenerative incurable diseases or in the pathologies of the elderly, so that palliative therapy programs can also be activated in an anticipated time with respect to the terminality and with the aim of guaranteeing a quality of optimal life; 4) will be able to undertake adequate preventive and protective actions against diseases, maintaining and promoting the health of the individual, the family, and the community. They will refer to the basic organization of health systems, which includes policies, organization, financing, and restrictive measures on costs and principles of efficient management in the proper provision of health care. They will therefore be able to correctly use local, regional, and national surveillance data from demography and epidemiology in health decisions; 5) will know how to respect professional values that include excellence, altruism, responsibility, compassion, empathy, trustworthiness, honesty and integrity, and the commitment to follow scientific methods, maintaining good relationships with the patient and his family, to safeguard well-being, the cultural diversity and autonomy of the patient himself; 6) will know how to correctly apply the principles of moral reasoning and take the right decisions regarding possible conflicts in ethical, legal and professional values, including those that may emerge from ethnic or gender-specific differences, from economic hardship, from the commercialization of health care and new scientific discoveries. They will respect their colleagues and other health professionals, demonstrating the ability to establish collaborative relationships with them; 7) will be able to apply the essential principles of health economics in medical decisions with specific regard to the cost / benefit ratio of diagnostic and therapeutic procedures, hospital-territory therapeutic continuity, and organizational appropriateness. For the ability to apply knowledge and understanding, particular attention is given to the acquisition of practical skills through the learning of the semeiological bases of clinical sciences at the bedside during the internship organized as a guided tutorial activity in the third and fourth year of the course. Then there is attendance in university wards and clinics for the completion of clinical internship in the fifth and sixth year of the course and in territorial clinics, such as those of General Practitioners and Free Choice Pediatricians attended by students in the fourth and fifth year course.

Descriptor 3: Making Judgements

Graduates must have the ability to integrate knowledge and manage complexity, as well as to make judgements based on limited or incomplete information, including reflection on social and ethical responsibilities related to the application of their knowledge and judgements. To this end, graduates: 1) will be able to demonstrate a critical approach, constructive skepticism and a research-oriented creative attitude in carrying out their professional activities. They will be able to take into account the importance and limitations of information-based scientific thinking, obtained from different sources, to establish the cause, treatment and prevention of diseases; 2) will be able to formulate personal judgements

to solve analytical and complex problems and independently seek scientific information, without waiting for it to be provided to them, using the basis of scientific evidence; 3) will be able to formulate hypotheses, collect and critically evaluate data, to solve problems, in the awareness of the role played by complexity, uncertainty, and probability in the decisions taken during medical practice. They will be able to effectively plan and manage their time and activities efficiently to cope with conditions of uncertainty, and exercise the ability to adapt to change; 4) will be able to exercise personal responsibility in taking care of individual patients, in compliance with the code of ethics of the medical profession; 5) they will be able to exercise reflective thinking on their professional activity in relation to the relationship with patients and other operators, the methods used, the results obtained, and personal and emotional experiences. The autonomy of judgement begins to develop as early as the second and third year with the study of semeiology which guides the student towards clinical methodology. The development of independent judgement is completed thanks to the teaching methodology of the last years of the course that addresses the patient's problems essentially through the study of clinical cases, both in integrated courses and in clinical field activity.

Descriptor 4: Communication Skills

Graduates must be able to communicate their conclusions, knowledge, and the underlying rationale clearly and unambiguously to specialist and non-specialist interlocutors, as well as, in the manner required by circumstances, to their patients. To this end, graduates: a) will be able to listen carefully to extract and synthesize relevant information on all issues, understanding their contents, and exercising communication skills to facilitate understanding with patients and their relatives, enabling them to share decisions as equal partners; b) will communicate effectively with colleagues, with the community, with other sectors and with the media, and will be able to interact with other professionals involved in patient care through efficient teamwork; c) will demonstrate good sensitivity to cultural and personal factors that improve interactions with patients and the community; d) will be able to deal with critical situations on a communicative level, such as the communication of serious diagnoses, the interview on sensitive issues relating to sexual and reproductive life, on end-of-life decisions. For communication skills, particular attention is given to Human Sciences in the integrated courses of the second year. In this context, training is also implemented through techniques such as narrative medicine, reflection grids, role play as important tools in the acquisition of a true emotional and professional competence by the student.

Descriptor 5: Learning Skills

Graduates must have developed those learning skills that allow them to continue studying mostly in a self-directed and autonomous way. To this end, graduates: 1) will be able to collect, organize, and critically interpret new scientific knowledge and health / biomedical information from the various resources and databases available; 2) will be able to obtain specific information on the patient from clinical data management systems, using technology associated with information and communication as a valid support for diagnostic, therapeutic, and preventive practices and for the surveillance and monitoring of the state of health, including the application and also the limitations of information technology; 3) they will be able to manage a good archive of their medical practice for its subsequent analysis and improvement; 4) will be able to identify their training needs starting from auditing their own practice, planning self-training courses and assessing their own needs, professional risk factors, and professional burnout problems; 5) will be able to evaluate and use systems based on innovative technologies that will be introduced in clinical practice in the near future. For learning skills, particular attention is paid to communication in English. Particular attention is also given to IT and multimedia methodologies that facilitate the accustomed to critical

reading of scientific articles, and also prepare the graduate for the future ability to continuously update. Thus, this involves speaking and writing fluently in a European language other than Italian.