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ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC
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EXTERNAL EVALUATION REPORT

DEPARTMENT OF MEDICINE

UNIVERSITY OF ATHENS

European Union
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OPERATIONAL PROGRAMME
EDUCATION AND LIFELONG LEARNING
investing in knowledge society
MINISTRY OF EDUCATION & RELIGIOUS AFFAIRS, CULTURE & SPORTS
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TABLE OF CONTENTS

External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Medicine of the University of Athens consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Professor Vassilis I. Zannis, PhD (President)

Boston University School of Medicine, USA

2. Professor George Kitas MD, PhD, FRCP

Russells Hall Hospital , West Midlands, Duduley, United Kindom

3. Professor Nikolaos Robakis, PhD

Mount Sinai School of Medicine, New York University, USA

4. Professor Othon Iliopoulos, MD, PhD

Harvard Medical School and Massachusetts General Hospital Cancer Center, Boston, USA

N.B. *The structure of the "Template" proposed for the External Evaluation Report mirrors the requirements of Law 3374/2005 and corresponds overall to the structure of the Internal Evaluation Report submitted by the Department.*

The length of text in each box is free. Questions included in each box are not exclusive nor should they always be answered separately; they are meant to provide a general outline of matters that should be addressed by the Committee when formulating its comments.

Introduction

I. The External Evaluation Procedure

Dates and Brief account of the site visit.

The External Evaluation Committee (EEC) visited the Medical School of the National Kapodistrian University of Athens from Monday 17th to Friday 21st of February 2014.

List of reports, documents, other data examined by the Committee

The members of the EEC had examined the Internal Evaluation report covering Academic Years 2005 to 2010 and other documents sent in electronic format a few days prior to the site visit, including details for the 28 graduate (masters) programs, but very limited information for the Doctorate Program. For several issues, the EEC requested additional or updated information (for example short CVs of faculty and hard copies of the presentations). The administration and the faculty made every possible effort to provide the requested material.

Whom did the committee meet

In the morning of Monday 17/02/2014 the members of the EEC were briefed in the office of ADIP by Professor K. Economou. Following the briefing, the committee was transferred to the "Kostis Palamas" building of the Medical School of Athens, where they met with the school leadership and had presentations. President A. Dimopoulos provided an overview of the history, the facilities and the affiliated hospitals of the Medical School. He also gave an overview of the undergraduate and graduate programs, the teaching, research and clinical responsibilities of the faculty, their performance as well as the short and long term plans for future development of the Medical School. He was followed by the President of OMEA, Professor C. Stefanadis along with the Assistant Professor T. Psaltopoulou, who explained the Internal Evaluation process that generated the internal evaluation report.

Dr. Nikolaos Zografos, Head of Administrative Services of the School, outlined the managerial support for the educational activities of the School. Professor V. Gorgoulis described the pre-clinical training of the medical students. Professor P. Sfikakis described the clinical training of students at the medical school. Professor A. Tsakris provided an overview of the graduate (Master's and doctorate) programs. Dr. Terpos provided detailed information on the overall research activities of the school. Professor C. Spiliopoulou described the sources and amount of research funding of the School. Present in the meeting were also Professor T. Liakakos, deputy Vice Chancellor of the University of Athens who explained the funding of the University by the government and allocation among the different schools; as well as Professor E. Patsouris, Dean of the newly formed School of Health Sciences, to which the Medical School of Athens has been incorporated, alongside Dentistry, Pharmacy and Nursing. On Tuesday 18th and Wednesday 19th of February, the EEC had all day presentations (from 8 am to 7 pm) given by each of the directors or nominated deputies of the 28 masters programs. Each presentation was followed by a discussion and a question and answer session. The formal presentations of the masters programs to the EEC were well-prepared and covered most of the required information. The discussion was frank and aimed at addressing several issues identified, that will be described in more detail below.

Groups of teaching and administrative staff and students interviewed and Facilities visited by the External Evaluation Committee

Following the presentations on the 18th and the 19th of February, there were one hour meetings with students of the master's and doctoral programs. The meetings with students were private, in the absence of faculty. This was followed by one hour meetings with the directors and faculty of the different programs in the absence of the students. Due to time limitations, the EEC did not have the opportunity to visit research and other facilities associated with the graduate programs, however it had the opportunity to see research theses and publications that originated from these programs. The faculty members and the graduate students with whom the EEC met fully endorsed the significance and need for both the internal and external evaluation, demonstrating their desire for improvement and attainment of excellence. On the 20th of February the EEC drafted part of the external evaluation report. On the morning of 21st of February, the EEC had a feedback meeting with the School authorities and continued drafting the external evaluation report for the remainder of the 21st and the morning of the 22nd.

The external evaluation was well organized and the leadership, administrative staff and faculty of the graduate programs did their best to facilitate the whole process. The EEC wants to congratulate and thank all involved in the external evaluation for making our work as seamless as possible.

II. The Internal Evaluation Procedure

Comments on the quality and completeness of the documentation provided and on the overall acceptance of and participation in the Quality Assurance procedures by the Department.

The Internal Evaluation Report, detailed records for research programs of different departments, sections and individual laboratories of the Medical School were prepared by the OMEA and were available at the site visit. CVs of faculty members and scientific staff were provided. These documents helped the EEC understand the functions and programs of the Medical School and facilitated the conduct of the external evaluation. Overall, the Internal Evaluation report was mainly descriptive. It did not mention goals or objectives and lacked critical interpretation of the data and evaluation of outputs. Important regulatory issues, such as Human Subject, Protection, and Institutional Review Board, animal welfare, Biosafety and radiation safety were not adequately addressed. Limited information was provided on the evaluation of the productivity, performance and research funding of the faculty, as well as on criteria for faculty hiring and promotion. Other issues that were not adequately covered were: implementation of modern teaching and research approaches such as problem-based teaching, the future strategic plans of the School, and means of implementation. No evidence was provided that specific actions resulting from the 2011 internal evaluation were taken prior to the current external evaluation visit.

These latter important issues were brought to the attention of the leadership of the Medical School, who, in response to it, provided a strategic plan on how to address them. The EEC welcomes the positive response of the medical school but wants to point out that the process of internal self-evaluation and subsequent external evaluation should be continuous and iterative. Any corrective actions identified during evaluations need to be followed up and implemented in a timely fashion. Despite these limitations (that most likely result from lack of previous experience) overall the EEC found the internal evaluation report satisfactory and informative although unnecessarily long. A much shorter report that summarizes information essential for the evaluation of the school would have been more productive. For example short CVs containing essential information on the educational, clinical, and research activities of the faculty would have been much easier to follow and evaluate in the time frame available to the EEC members. The EEC wishes to thank Professors Dimopoulos and Stefanadis, as well as the rest of the leadership, the faculty, the students, and the other academic and administrative staff of the Medical School of Athens for the time they devoted to compiling the internal evaluation report and to updating much of the information prior to the visit. Their willingness to comply with the requirements of the internal and external evaluation demonstrates an appreciation and acceptance of the value of the review process and its role in the future development of the Medical School of Athens.

A. Curriculum

To be filled separately for each undergraduate, graduate and doctoral programme.

APPROACH

What are the goals and objectives of the Curriculum? What is the plan for achieving them?

There are currently 28 Masters Programs. The majority has 2 years, one has 1 year, two have 1.5 years and one has 3 years duration. All of them have one semester diploma work. Each program admits 10-50 students per year. The goals and objectives of each curriculum and the means to implement them differ for each of the 28 programs. Each program has its own self-described objectives and its own means to achieve them and there are no apparent collaborations among the programs. There is overlap in the courses taught and many faculty members teach in more than one program. There are general similarities among the programs regarding the legal framework, the admission criteria, the curriculum, and the textbooks provided to students. During the presentations, the program directors provided information on collaborations with other AEI, ATEI and research institutes both in Greece and abroad and the educational, societal, and economic importance of the programs. Information was also provided on the evaluation of student performance, the evaluation of the program by students and in some programs, the career advancement of the graduates. Prevailing objectives of the program missions were: (a) To provide specialized knowledge that will help the graduates of the program to advance their current careers and to create new job opportunities for specific categories of nurses and other health care professionals. (b) To perceive shortages of trained personnel that exists in clinics. (c) To prepare graduates who have further interests and ambitions for a PhD program. (d) To enhance the knowledge and clinical skills of MDs attending a specific program. (e) To introduce students to research in the field covered by the program. And, (f) to mentor, in a few cases, students to find educational and/or career opportunities abroad. Program goals are attained by implementation of the individual curricula and monitoring student satisfaction and success. Criteria for success included student grades, quality of diploma thesis and, in some cases, career outcomes.

How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?

The objectives were decided on by the principal investigator and representatives of other participating programs of universities or technological institutions (ATEI). The programs were approved by the general assembly of the Medical School and published in the Government Gazette. The available information indicates that most programs reflect the conviction of the program directors. They believe that these needs are not currently addressed by the education and training provided by the AEI and ATEI (i.e. lack of specialized nurses or medical subspecialty training). The majority of the programs employ expanded undergraduate curricula and structure that are not consistent with existing international standards. The exceptions are the programs in biostatistics, medical physics, molecular and applied physiology, clinical neuropsychology, the occupational and environmental health programs that were guided by prolonged international collaborations or advisory boards, and the molecular medicine program which was build on the prototype of MD-PhD programs in North America, Europe and in Crete. No information was provided on whether other stakeholders were consulted in the development of the curricula and who they were.

Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?

Regarding the need to improve the training of health professionals through the masters programs, the EEC believes that in the long run this may not be the most appropriate and efficient way to deliver such training. Professional retraining and continuous education should be the responsibility of professional societies and institutions in collaboration, when needed, with the medical school. Nevertheless, at this stage, many of the masters programs may serve transiently to fill the void left by other institutions

entrusted with this task. This activity however may detract from other important and unique functions of the medical school. Overall, the curriculum of most master programs differs drastically from those of international graduate programs designed to prepare new scientists to enter doctorate (PhD level) programs and need to be modified accordingly.

How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?: Has the unit set a procedure for the revision of the curriculum?

The curricula were decided by the program directors and representatives of other participating institutions. Students were not involved in initial development of the curriculum, although they have contributed to curriculum refinement via the course evaluation process. From the information provided, it is not known whether other stakeholders or external advisors were consulted on how to develop curriculum.

There is no clear, uniform procedure, guidelines or timeframe for the revision of the curriculum. Most programs indicated that the curriculum is revised at the end of each semester, based on the input of students or the need to incorporate advances of the field. Four programs (Biostatistics, Medical Physics, Interventional Radiology and Environmental Health) incorporate improvements to the curriculum based on the advice of an external advisory committee.

IMPLEMENTATION

How effectively is the Department's goal implemented by the curriculum?

Below are summaries of the objectives and curricula of individual programs which are grouped thematically. These summaries provide descriptions of the methods of implementation, the specific strengths and weaknesses, comments and recommendations for each program. The purpose of this analysis is to assist the medical school to develop a comprehensive strategy to harness the power of graduate education and achieve academic excellence. Abbreviations used below **MSc** = Masters in Science (full-time tuition-free programs designed to rigorously train doctoral candidates for biomedical research in different specialties in line with internationally established PhD programs. **MCSc**= Masters in Clinical Science, designed to educate and train MDs, nurses and other health care and public health professionals for specialized jobs.

The biostatistics program was established in 1998 and it is directed by Dr. A. Bourneta and Dr. K. Katsouyanni. The program is a well organized, interdepartmental program that integrates faculty from the Medical schools of Athens and Ioannina and the Department of Mathematics of EKPA. The program teaches applied statistics to health science professionals. Statistical knowledge is essential for the collection and analysis of data for clinical research, epidemiology and environmental and behavioural research. The program has a critical mass of well qualified faculty of which twelve percent (12%) have degrees from either Harvard University or the University of London. The program has been evaluated twice by an international advisory committee and has adjusted its curriculum to address recommendations. In addition, advances in the field are evaluated annually and incorporated into the curriculum. Teaching and laboratory facilities, library and IT support are adequate and appropriate for the program. Three of its graduates have completed doctorate degrees and 20 others are pursuing doctoral studies in Greece and several other prestigious European and US laboratories. **Comments and Recommendations:** Biostatistics is an excellent and established program that has demonstrated its ability to train new professionals in biostatistics and to generate faculty for AEI and ATEI. The program should continue its productive work, maintain and strengthen its productive collaborations with Harvard University and the Universities of London and serve as a model for new emerging programs. It fulfils the international criteria of MSc leading to Doctorate (PhD level) studies.

A.Programs originating from basic and preclinical departments

The molecular medicine program was established in 2004 and is directed by Dr. N. Anagnou. This

program has been developed along the lines of a similar program established in 2002 at the Medical School of Crete, based on international standards. These two Greek programs reflect the organization and objectives of the MD-PhD programs that operate in the medical schools of North America and Europe. The basic strategy and objectives of these programs is to attract the brightest graduates of the medical school and biological sciences, provide them with rigorous research training and enable them to become leaders in the medical field of their specialty (e.g. cardiology, paediatrics, oncology, neurosciences, genetics, etc.). The molecular medicine program is a full time, tuition free program that offers rigorous course work for 6-8 months based on current literature, two laboratory rotations and research for two semesters that leads to a master's degree. The graduates of the program are well trained to pursue doctoral (PhD) studies and obtain an MD-PhD degree if they have graduated from the medical school or a PhD if graduated from another school. The program engages the surrounding research institutes including IIBEAA to participate in teaching and provide laboratory space and facilities for the research training of the graduate students. As a result of this policy, the program has achieved a critical mass of highly qualified faculty to teach and train the graduate students. The program's director presented a road map for future development with the involvement of the European academic community the Greek universities and research institutes. **Comments and Recommendations:** Together with the Biostatists and any other program that develops along similar lines, this program is ideal to foster integration of the clinical and basic science departments and research institutes and thus transfer via the trained graduate students new knowledge and research skills to the clinical departments of the medical school. The program fulfils the criteria of MSc leading to Doctorate (PhD level) studies that award PhD and MD-PhD degrees compatible with the international standards.

The Medical Physics program is a well structured inter-departmental and trans-university program established in 1994 that is currently directed by Dr. Georgiou of the Physics department of EKPA. It draws its faculty from the medical school and the department of physics as well as the medical schools of Thessaloniki, Ioannina and Crete. It collaborates with the atomic energy commission and Democritus and thus provides its students with high quality education. Its graduates qualify to obtain license (following an exam) to work as medical and radiation physicists. The curriculum consists of 30% lectures and 70% laboratory training in small groups. The program underwent international evaluation in 2000 and adjusted its curriculum in 2013 based on the European directive EURATOM. The program has produced 31 doctorate degrees and 6 more are in progress. A survey found that 72% of the graduates have found employment in the field. **Comments and Recommendations:** The program has been successful in the education, the professional advancement and the career opportunities it creates for its graduates. It demonstrates the significance of productive collaborations between a basic science department and the medical school of Athens. The program revises regularly its curriculum to incorporate the advances of the field. It fulfils the criteria of MSc leading Doctorate (PhD level) studies.

The molecular and applied physiology program was established in 2009 and is directed by Dr M. Koutsilieri. The program admits 35 students annually with background in medicine or life sciences. Its objective is to provide graduate level training on the molecular, cellular and pathophysiological mechanisms that underlie disease states and to promote basic and translational medical research. The program has an international advisory board, a highly qualified team of faculty drawn from basic and clinical departments of the medical school and other institutions and five visiting faculty from abroad. The collaboration with other faculty of the basic sciences and the recent recruitment of a prominent scientist from Fleming add additional strength to the program. Twenty graduates of the program continued for doctorate studies in Greece and 5 others abroad. **Comments and Recommendations:** Similar to the molecular medicine, this program has the potential to bridge the research activities of the basic and clinical departments. The program will benefit by reducing the coursework to two semesters and increasing the laboratory practical training to one year. The program fulfils the criteria of MSc and has strong potential to prepare its graduates for doctorate (PhD level) studies based on international

standards.

B. Programs originating from clinical departments.

Cardiology Programs

The Intensive Care cardiology units program was established in 2005 in collaboration with the nursing school and TEI and is directed by Dr. C. Stefanadis. The objectives of the program are twofold: To train physicians and health care professionals to work in intensive care and cardiology units and to prepare the graduates for doctorate studies. The first objective which is common with the Emergency/Intensive Care program (see below) is realized by a comprehensive curriculum that is supported by an excellent collection of textbooks and clinical and laboratory infrastructure and access to internet. The second is partially met by exposure of the students to current literature and clinical research. The program has a great roster of faculty that is very productive in research and provides opportunities to the students for clinical and medical research. Twelve graduates obtained doctorate degrees and 20 other students are pursuing doctorate degrees in Greek and foreign universities. **Comments and Recommendations:** Given the quality of its faculty, the program has the potential to develop into a first rate research oriented graduate program to train the most talented graduates of the medical school. This will require separation of the program in two components. One program should be directed towards education and training of the nurses and other healthcare professionals following the appropriate curricula. The other porgram should be directed towards rigorous training of master students to pursuit research in cardiovascular diseases and cardiology and other specialties of internal medicine along the lines of internationally established PhD level programs (See section F). The program in its present form is an excellent MCSc program and its director is encouraged to develop a parallel MSc program leading to PhD level studies.

The Laboratory and clinical cardiology program was established in 2007 in collaboration with the ATEI of Athens and is currently directed by Dr. I. Lekakis. The program admits on the average 12 MDs, nurses and other health professional and provides theoretical, clinical and research training on the subject matter. Student surveys suggested that the program advanced their career path and created trained personnel for public and private clinical cardiology units and private practice. **Comments and Recommendations:** The program fulfils the criteria for MCSc degree. A collaboration of this program with the intensive care cardiology program for the development of a doctorate (PhD level) program will be advantageous.

The Cardiopulmonary Resuscitation program was established in 2007 and it is directed by Dr. L. Papademetriou-Papakosta. The program is directed towards medical doctors and other groups of health professionals. It enlists several Greek and 3 international faculty and admits on average 35 students per year. It employs problem-based learning, teaching based on current literature and experimental work. Classrooms, laboratories and e-learning platforms appear adequate. Sixteen of the graduates of the program are pursuing doctorate studies. **Comments and Recommendations:** According to ACLS guidelines training in cardiopulmonary resuscitation is mandatory to any residency program. Cardiopulmonary Resuscitation is covered by a specific course of 2 ECSTs within the program of intensive care cardiology. Cardiopulmonary resuscitation is important and socially meaningful. However, it would be more fitting, if the program was incorporated in the near future into the programs of the participating ATEI and the nursing schools perhaps in collaboration with Red Cross and other nonprofit organizations. Training that leads to doctorate (PhD level) studies should be carried out in the context of the two cardiology programs described above. Having a separate graduate program for this subject appears to be excessive**.**

The Emergency/Intensive Care program was established in collaboration with the nursing school and TEI of Athens in 2006 and is directed by Dr. H. Roussos. It is designed to train MDs, nurses and other health care professionals required for intensive care medicine and/or emergency units, which according to the program director are in short supply. The program admits 40-45 students per year. The

graduates have good prospects for employment and professional advancement. Ten of its graduates continued for a doctorate degree. It has 59 well qualified faculty members from different disciplines. The curriculum utilizes high quality textbooks and access of the students to Scopus database for literature searches. Classrooms, clinical facilities for training and e-learning platforms appear to be adequate. **Comments and Recommendations:** The program in its present form fulfills the requirements for MCSc degree. The program has common goals with the iintensive care cardiology units program and will benefit by collaborations with this program to avoid duplication of efforts.

Cancer related Programs

The Thoracic Oncology program was established in 2009 and is directed by Dr. K. Sirigos. Approximately 50% of its students hold MD degrees and the remaining are graduates of nursing schools or ATEI. The program is of high quality and is based on international standards. Its main objective is to train students to develop critical thinking in all aspects of the disease. Five of its graduates continued to obtain doctorate degrees and 25 were mentored to continue training abroad using existing collaborations of the program director. Teaching is based on original papers and review articles with emphasis on current literature and critical reviews. **Comments and Recommendations:** The program in its present form fulfils the requirements for MCSc degree. Collaboration with the basic and clinial sciences and research institutes is recommended to establish a strong doctorate (PhD level) program within the department of Pathology based on international prototypes.

The neoplastic disease program was established in 2009 and it is directed by Dr. E. Patsouris. Its objective is to train physicians and other healthcare professionals on the etiology, diagnosis and treatment of cancer and to channel some of the graduates towards doctorate studies. It has a critical mass of 30 qualified faculty and admits on average 30 students per year. Ten of its graduates are continuing for a doctorate degree and 20 others went abroad. **Comments and Recommendations:** Neoplastic disease is a very active field of medical research. The program has the potential to evolve towards this direction by dividing it in two components. The first component dealing with education of nurses and other health professionals will lead to a MCSc degree. The second should provide rigorous scientific training of MDs and basic scientists in collaboration with other programs, to pursuit research focused on cancer leading to a doctorate (PhD level) degree.

The Supportive care for chronically ill program was established in 2009. It is directed by Dr. K. Mystakidou and admits on average 15 students per year, with health science background. The curriculum involves mostly undergraduate level course work, limited clinical practice and extensive diploma work that leads to a thesis. Two of the graduates work towards doctorate degree and others work in private and public hospital units that require the skills provided by the program. **Comments and Recommendations:** This program has overlapping features with other social medicine programs that deal with the subject matter and will best serve its purpose as a component of these programs.

Other Internal medicine programs

Hematology

The Thrombosis and Hemorrhage program was established in 2009 and it is directed by Dr. A. Travlou. The program provides theoretical and practical background to health care professionals and enhances the clinical skills of medical doctors. This three quarter program admits on the average 30 students annually (50% MDs and 20% nurses). Four of the graduates continued for doctorate degree. **Comments and Recommendations:** The program falls in the category of MCSc. For the training of medical doctors, the program could best serve its purpose as a clinical fellowship program. For contributing to doctorate studies the program should be intensified and become part of a comprehensive pathology doctorate (PhD level) program along the lines of similar graduate programs that exist in medical schools abroad.

Obstetrics and Gynecology Programs

The Complications of Pregnancy program was established in 2009. It is directed by Dr. E.

Salamelekis and admits on the average 55 students per year. It refreshes and advances the theoretical background of the graduates of the medical school and educates students of ATEI (nurses, midwifes) on the subject matter. The program is carried out in the facilities of the obstetrics and Gynecology clinic of Attikon hospital. It has expert clinical faculty including two visiting professors from Germany, Italy, visiting faculty from all other medical schools and two research Greek institutes (IIBEAA and former EIE). The curriculum is based on textbooks and selected scientific articles, access to IT platforms, scientific conferences and student presentations. Two graduates of the program are pursuing doctorate studies. **Comments and Recommendations:** Training of nurses and midwifes can be accomplished following the established curriculum and proper modifications. The program falls in the category of MCSc. The training provided to the MDs should be incorporated into a residency or fellowship program. For training physician and basic scientists for doctorate studies the program should be upgraded and incorporated into a comprehensive Obstetrics and Gynecology doctorate (PhD level) program along existing international guidelines.

The Reproductive and regenerative medicine program was established in 2009 and is directed by Dr. D. Loutradis. The program admits on average 14 students annually mostly with background in medicine or life sciences. The objectives of this one year program are to provide theoretical background and teach laboratory techniques. The duration of the program is too short to accomplish the latter task. It was also noted that the thematic connection between reproduction and regenerative medicine is minimal. Limited information was provided on what courses were taught by each faculty of the department and the visiting faculty listed in the program. **Comments and Recommendations:** The program will best serve its mission as residency and/or fellowship program in the department of obstetrics and gynecology. This program should strengthen its academic component in order to develop into a MCSc Program. It may be helpful to coordinate its training activities with the "Research on Female Reproduction" program.

The Research on Female Reproduction program was established in 2007 and is directed by Dr. G. Mastorakos. The program admits on average 34 students annually and attracts a large number of MDs (43%), midwifes (33%) and biologist (21%). The objective of the program is to provide theoretical background and expose the students to modern methodologies and practical applications in the field of female reproduction. The program has awarded 3 scholarships of three months duration to its best students to carry out their diploma work in collaborating laboratories abroad. An innovation of the program is that starting in the academic year 2013-1014 will use the internet to broadcast webinars and receive lectures from outside speakers. Little information was provided regarding the 58 faculty and numerous collaborators that teach the different courses and supervise the students. **Comments and Recommendations:** The program upgrades the knowledge of healthcare professionals, has merit and falls in the category of MCSc programs. The director of the program has the qualifications and training to contribute, along the other faculty, in the creation of PhD level program in the department of obstetrics and gynecology along established international standards.

Pediatric Programs

The Clinical and Research Pediatric Nursing program was established in 2006. It is directed by Dr. G. Chrousos and admits 20-30 students annually. The program updates and expands the knowledge acquired during the pediatric residency and fellowship of MDs. It also trains nurses and other health care professionals to serve in pediatric units in private and public hospitals. The curriculum is very broad and covers a large array of topics on pediatrics, including pediatric intensive care and methodology of research. A total of 17 text books are provided to cover the different courses. A total of 26 graduates of the program continued for doctorate studies. **Comments and Recommendations:** The training of the nurses to provide pediatric health care can be accomplished following the appropriate curriculum. The program in its present form falls in the category of MCSc programs. For training physicians and other basic scientists for doctorate studies to advance the field of Pediatric research, the program director has outstanding expertise and is encouraged to develop a more advanced program along international

prototypes of PhD programs in medical schools abroad.

The Control of Stress program started in 2008 and is under the direction of two highly qualified researchers Dr. G. Chroussos and Dr. C. Darviri. The underlining hypothesis is that the risk factors of cardiovascular and other diseases are the result of stress. The program admits 25-30 students per year. Nineteen of its graduates continued for a doctorate degree in Greece or abroad. The students receive theoretical background of human conditions associated with stress and are trained to assess the stress in various groups of human subjects using questionnaires and biological markers as well as strategies for intervention in the general populations or specific groups. **Comments and Recommendations:** The scope of the program (which appears to be unique worldwide) is very narrow. Although stress management is important for research and public health purposes it does not justify its existence as a separate program. The program could best serve its mission as a component of social medicine, public health and epidemiological studies or in the Clinical Pediatrics program where stress is frequently measured in children undergoing various treatments.

Radiology Programs

The interventional radiology program was established in 2003 and it is directed by Dr. D. Kelekis who is an expert and is committed to train MDs and advance the field of interventional radiology in Greece. The program has 29 expert faculty and several supporting scientists. It includes 11 month coursework, 2 months practical training and 11 months of thesis work. The program provides 3 to 5 fellowships per year and is modified each year based on external evaluation. Many students have graduated from the program and 10% of them have become interventional radiologists and 5 work in European universities**. Comments and Recommendations:** The program has trained a large number of graduate students over the past 11 years, has merit and fulfils the criteria of a MCSc degree. In the near future, the field of interventional radiology could be optimally served by the residency program or the establishment of a fellowship program in the medical school.

Surgery Programs

The Metabolic Bone Disease program was established in 2007 and is directed by Dr. G. Lyritis. It admits on the average 55 students annually and has a large number of qualified faculty. It provides basic knowledge on metabolic bone disease as well as practical training using the laboratories of KAT. Textbooks and access to electronic platforms are provided. The students are trained to analyze original papers and write reviews and present cases of metabolic bone disease. No information was provided on the careers of the graduates. **Comments and Recommendations:** The program in its present form fulfils the requirements for a MCSc degree. For doctorate studies the program best fits into a comprehensive Pathology or surgery (PhD level) program.

The minimally invasive surgery program was established in 2005 and is directed by Dr. C. Tsigris. The program admits on average 15 MDs annually and is of good quality. The exposure of the students to hands-on practical experience is limited for such a “technically demanding” training. **Comments and Recommendations:** The program in its present form fulfils the requirements for a MCSc degree. Although the program serves the purpose of providing some training to MDs in minimally invasive surgery, in the long-run it could best serve its mission as a fellowship program in the surgery department.

The Vascular Surgery program was established in 2009 in collaboration with the University of Milano-Bicocca and is directed by Dr. D. Liapis. It admits 20-33 specialized surgeons annually and its duration is one year. It provides theoretical background through courses and e-learning as well as hands-on laboratory practice in simulators and experimental animals, using the surgical laboratories of IIBEA. Six students continued for doctoral degrees and twelve continued their training in Europe or USA. **Comments and Recommendations:** This Program although short exposes the students to a technically demanding medical specialty and creates opportunities for long term training abroad and therefore has merit. The program in its present form fulfils marginally the requirements for a MCSc degree. In the long run the program could best serve its mission as a fellowship program in the surgery

department. **General Comments for Surgery Programs:** The surgery specialties are encouraged to develop in collaboration with other clinical and basic departments a doctorate (PhD level) program along existing international prototypes.

Public Health and Social Medicine Programs

The Environmental Health program was established in 2004 in collaboration with the TEI of Athens and is directed by Dr. Dr Nikolopoulou-Stamati. The program admits on average 20 students annually. It focuses on the effects of environmental pollutants on public health through epidemiological studies that monitor changes in tissues cells and the DNA, caused by environmental factors. The program started in response to WHO initiatives on environmental health services in Europe. It has several quality control features including internal and international advisory committee and assigns faculty advisors to the students. The curriculum involves general and a specialized course based on selected textbooks, and is enriched with e-classes, seminars, workshops and a summer school. The program has a critical mass of expert faculty as well as participation of 10 visiting faculty from Europe USA and India and collaborations with Greek and European Institutes. Three of the graduates are continuing for doctorate degree. **Comments and Recommendations:** This program has several quality control features listed above. The program is of high quality and in its present form fulfils the requirements for a MCSc or MSc degree. There are common elements between these programs and those of Dr. Linou, Dr. Toundas and Dr Rosenberg described below. Collaboration and coordination of these masters program is required to avoid duplication of efforts and to optimize the outcome. Also collaboration among these programs is needed to develop a single common graduate program of the department of Hygiene and Epidemiology with rigorous curriculum that prepares the best of the master's students for doctorate (PhD level) studies using international standards.

The occupational and environmental health program was established in 2004 and is directed by Dr. A. Linou of the department of Hygiene and Epidemiology and Medical Statistics of the Medical School. It is interdepartmental and trans-university program that involves the medical school, the law school of Athnes and the T.E.I. of Crete. The program admits on average 6-7 students per year and has 60 qualified faculties, including 7 international faculty from US, Germany, France and Denmark. Two graduates of the program have completed their doctorate thesis and two theses are in progress. Twenty-nine of its the graduates are currently employed. There are several similar programs in England, Ireland and the Netherlands. **Comments and Recommendations:** The program in its present form fulfils the requirements for a MCSc or MSc degree. The program has overlapping features with the program of Dr. G. Toundas and Dr.Nikolopoulou-Stamati of the same department and the program of Dr Rosenberg. See comments above for cooperation with the other public health programs.

The Promotion of Public Health program was established in 2004 in collaboration with the department of Psychology of EKPA and the ATEI of Athens and is directed by Dr. I. Toundas. The program admits on average 12 students annualy. The objective of the program is to train new scientists in the planning, execution of public health, and epidemiological projects as well in the evaluation of public health programs and associated policies. The curriculum involves courses based on bibliography and reviews, IT and e-learning platforms educational statistical packages and research that leads to a diploma thesis. The laboratory is open to the students all working days. Out of 101 graduates surveyed, 57 who were public employs improved their professional status and 17 found employments in the field. **Comments and Recommendations:** The program in its present form fulfils the requirements for a MCSc or MSc degree**.** The program has overlapping features with the program of Dr. Linou and Dr.Nikolopoulou- Stamati of the same department and the program of Dr Rosenberg. See comments above for cooperation with the other public health programs.

The International medicine and management of health crises program was established in 2007 and is directed by Dr. T.Rosenberg. The objectives of the program are to provide advanced theoretical knowledge on local and international public health and social problems and practical research

tools how to intervene and alleviate these problems. The program admits on the average 40 students annually. For teaching it uses textbooks as well as e-classes and access to e-libraries for literature searches and requires a diploma thesis. It encourages involvement of its students in relevant social issues. The program enlists in its faculty 30 qualified instructors from Greece and abroad. **Comments and Recommendations:** This is an innovative program that has social relevance and in its present form fulfils the requirements for a MCSc degree. The program has overlapping features with the program of Dr. Linou and Dr.Nikolopoulou-Stamati and Dr Toundas of the department of Hygiene and Epidemiology. See comments above for cooperation with the other public health programs.

Clinical Neurosciences Programs

The Clinical Neuropsychology program was established in 2009 by Dr. A. Papanikolaou of the health science center of the University of Texas and is directed by Dr. Evdokimidis. It is a unique three year high quality program that provides the theoretical courses on neurology and neuropsychology and one year clinical training and seminars in Greece or abroad. Every student receives 3 month cost-free training in the US. It has an outstanding faculty that includes experts from Greek universities as well as seven distinguished faculty from the US, Canada and Europe. Five of its graduates have engaged in doctoral studies, two secured scholarships for Europe and 20 are employed in hospitals or the private sector. **Comments and Recommendations:** This is a well conceived and executed graduate program that is based on international collaboration and knowhow. It can be further strengthened by the establishment of an external international advisory committee. The program qualifies for MCSc or MSc degree and can prepare the graduates for a doctorate (PhD level) program along existing international standards.

The Promotion of Mental health program was established in 2009 and is directed by Dr. G. Papademitriou. Its objectives are to train MDs, psychologist social workers and other health care professionals in areas pertinent to the prevention and treatment of mental diseases and to teach the research methodologies of the field. The program admits on the average 45 students annually. The faculty of the program are members of the A psychiatry unit of the medical school and invited speakers from Greece and one from the institute of psychiatry of Kings college. Seven of the graduates are pursuing doctorate studies. **Comments and Recommendations:** The program is dynamic and socially meaningful that selects students of diverse backgrounds that fit its mission. It is innovative and has strong points. The program was supposed to award 60 ETC in two semesters. For reasons that are not clear, credits were added to those originally approved for the program bringing the total to 90 ETC. Given the fact that this is a part time program the additional credits make it an intense training program that will be hard to meet its objectives in two semesters. The EEC recommends that a third or fourth semester be added to conform with the MCSc requirements. The program will also benefit from collaboration with the program of Dr. Papageorgiou as described below.

The Integrative Psychiatry program was established in 2009 and is directed by Dr. C. Papageorgiou The program admits on the average 20 students annually with background in medicine, psychology and nursing. The objectives of the program are to advance education and research in the field and to enable the graduates to provide high quality psychiatric services. Only general information was provided on the role of the Greek and visiting teaching faculty in the program. Few of the graduates pursued career opportunities abroad and the majority found employment in the field. Comments and Recommendations: The program in its present form belongs to the MCSc programs. It will be strengthened by collaboration with the program of Dr. Papademetriou to create a common four semester program. General Comment for Neurology and Neurosciences: The neurology and clinical neurosciences departments are encouraged to collaborate with other clinical and basic departments and IIBEA to create a strong research oriented MSc program that will prepares the graduates for a doctorate (PhD level) program along existing international standards.

Doctorate Degree Programs

The description of the process that leads to doctorate degrees was very brief (2 out of 2650 pages) in the internal evaluation report. It appears that there are two pathways that qualify the students for admission to the current doctorate programs. The first pathway admits graduates of masters programs (either those described above or graduates of other programs). The second pathway, referred to as an alternative pathway, is a direct admission of the medical school graduates to the doctorate program. The details of the mechanisms of admission are described in the internal evaluation document and were included in the oral presentation of the medial school leadership to the EEC. This pathway does not include additional course work or master thesis and the students are supervised by a 3 member advisory committee. Upon completion of her/his thesis the student defends the thesis in a 7 member committee. The minimum time required is 3 years and the thesis work may frequently overlap with residency training. The EEC asked faculty and students of this program to join in the two day discussions. Only a handful of students showed up and explained how the program works. This program admits over 300 students annually. According to the data provided to us there are currently 3650 doctorate candidates and their status is unclear (i.e. several of the students may be inactive). Although some of the graduates of this program may excel during further post-doctoral training abroad, the research skills acquired during the doctoral training in most cases are minimal. **Comments and Recommendations:** The alternative pathway doctorate program has several flaws that cannot be overlooked and need to be remedied. The problem is not unique to the medical school of Athens but applies to all medical schools of Greece. The program does not provide structured, properly supervised training, or advanced courses in science or laboratory training to the doctorate candidate, beyond the courses provided in the undergraduate curriculum of the medical school. Doctorate training frequently overlaps with residency training and this compounds the inadequacy of the program. Selection of the doctorate students is not uniform and transparent and may exclude the majority of other qualified candidates, who might wish to compete for admission. The EEC was informed that the degree obtained through this program is required for an academic faculty position or an attending position in the state health system but it does not correspond to a rigorous PhD program degree. The EEC considers this program equivalent to the research fellowship training that MDs receive in North America during the last two years of their specialty training that does not award any graduate degree.

This doctorate training program promotes convenience rather than excellence and fails to capture the enormous potential of the students of the medical school of Athens who are some of the brightest the country has to offer. It also fails to capture the potential of several faculty members, that, given the correct structure and organization of the graduate programs, has the ability to provide internationally competitive PhD level research training. Recommendations are provided above and in section F how to upgrade the doctorate programs to reach international standards. Such programs will advance the careers of the most qualified medical school graduates, will promote biomedical research and innovation, will incentivize faculty to perform at the maximum of their ability and will enhance the international reputation of the medical school of Athens.

How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?

The CVs of the faculty of graduate programs presented, indicate that in most cases the programs reflect the expertise and clinical or research interest and training of the director of the program rather than the collective interests and expertise of a department or a clinic. Based on internationally accepted standards for excellence, the masters programs in top medical schools abroad are organized predominantly in thematic areas by specific science and in few cases preclinical and clinical departments and reflect the combined expertise of the faculty. Such programs are designed to provide technical skills that will advance career opportunities for the students pursuing a master's degree or will provide rigorous science or other background that will help students pursuit a high quality PhD degree. Surveying the graduate

programs of top American and European Medical Schools including those of EEC Members (Harvard, Boston University, Mount Sinai, UK) we identified masters programs in the following areas: Biochemistry, molecular and cell biology, biophysics, physiology, pharmacology, experimental therapeutics, neurosciences, mental health counselling behavioural medicine, bio-imaging, clinical investigation, genetic counselling, healthcare, biomedical sciences, emergency management, nutrition and metabolism, and physician assistant. The PhDs are also organized along the basic science departments mentioned above and include programs in biochemistry, molecular and cell biology, biophysics, physiology, pharmacology, neurosciences, anatomy, pathology, immunology, molecular medicine, translational medicine, biostatics, public health, bioinformatics, genetics and genomics, and biomedical sciences. These programs attract top students of the science departments, are full-time and provide financial support to the students. The curriculum consists of a full year graduate level courses, along with two laboratory rotations, and second year with few courses along with two laboratory rotations and usually three years of full time research. The most prestigious program is the MD/PhD that is reserved for the top students of a medical class who are trained to become physician scientists. Only few of the 28 masters programs reviewed by the EEC resemble in aims and objectives the curriculum of American and European Medical Schools masters programs. There is no resemblance of the doctorate program of the alternative pathway with the PhD degree offered by the medical schools and the science departments abroad.

Is the structure of the curriculum rational and clearly articulated?: Is the curriculum coherent and functional?

Several of the programs try to accomplish two goals: One is to train physicians and health care professionals to work in specialized clinical care jobs and the other is to prepare the graduates for doctorate studies. The first goal is realized by the comprehensive curricula, the textbooks, the e-learning platforms and other teaching methods currently employed as well as by the practical training. The realization of the second goal for the majority of the programs will require a separate curriculum enriched in graduate level science or technology courses and research training for students interested in doctorate studies as described below.

The theoretical curriculum of programs that have as a major objective to train physicians and health care professionals in specialized clinical skills is, generally speaking, coherent and functional. In these programs, it would be more beneficial if the theoretical training is decreased and the emphasis of the curriculum shifts to more extensive practical training.

The programs of biostatistics, medical physics, molecular medicine, clinical neuropsychology, Molecular and applied Physiology and the social medicine and epidemiological programs have coherent and functional masters curricula. Any deficiencies in the above programs can be easily corrected based on student questionnaires and the input of the internal and external advisory committees. For programs having the additional objective to train the students for doctorate (PhD) studies, a parallel but distinct curriculum should be offered within the same program. This parallel curriculum should be enriched in graduate level science or technology courses for the first year, based on current literature and advances in the field as well as laboratory rotations and a full year of research work for the second year. The best of the students of this parallel curriculum may then be selected for doctorate studies. Simply put, the programs have to develop two separate tracks: training for specialized professional skills and training for scientific doctorate work.

Is the material for each course appropriate and the time offered sufficient?: Does the department have the necessary resources and appropriate qualified and trained staff to implement the curriculum?

For programs that have as major objective the training physicians and health care professionals to perform specialized clinical jobs, the textbooks and the e-learning platforms provide sufficient theoretical material for the different courses. The time allocated for each course appears sufficient. Nevertheless, in

these programs, it would be more beneficial if the theoretical training is decreased and the center of the curriculum shifts to critical thinking and more extensive practical training. The parallel curriculum designed to train doctorate (PhD) candidates should be enriched in graduate level science or technology courses and include one year of laboratory research work as described above.
The resources required to run the graduate programs are derived from student tuition. The programs that have as major objective the training physicians and health care professionals to perform specialized clinical jobs, are staffed with a large number of qualified clinical faculty to implement the curriculum. There appears to be a shortage of trained faculty for implementation of the parallel curriculum designed to train doctorate (PhD) candidates. The personnel required for this task could be provided in the short-run by mobilization of the faculty members employed in active research and through collaborations with the research institutes in Athens or other cities in Greece and abroad. In the long run, trained doctorate students that will be generated can serve as teaching assistants to train the second year masters students and implement the curriculum.

RESULTS

How well is the implementation achieving the Department's predefined goals and objectives?: If not, why is it so? How is this problem dealt with?: Does the Department understand why and how it achieved or failed to achieve these results?

The few early programs established during 1994 to 2004 period, which were funded by the Greek Ministry of Education, had clear objectives and to a large degree, realized their objectives. The subsequent programs (during 2005 to 2009 period) were created by initiatives of individual faculty in response to calls for establishment of graduate programs by the Ministry of Education of Greece (EPEAK programs). The funded programs were subsequently approved by the medical school. To our understanding, it appears that there was no central planning and policy by the medical school or individual departments for the creation of these subsequent graduate programs. It is the opinion of the EEC that the random creation of the graduate programs may have corrected some perceived deficiencies, but it created new problems that need to be addressed.
Given the fact that the creation of the masters programs is a new development in the medical school, the expectation is that the department will use the evaluation of EEC to streamline and reorganize the programs to achieve optimum outcomes. It is the opinion of the EEC that organization of the graduate programs based on well-tested international prototypes will provide the scientific human resources that in the long-run will elevate the medical school to a new level of academic excellence. (See recommendations in section F)
To our understanding, based on discussions we had, the department welcomes recommendations on how the masters as well as the doctorate (PhD) programs can be optimized based on international models and standards of excellence. During the discussion, some of the program directors strongly emphasized the role of the programs for the training MDs and nurses in specialties that are not covered sufficiently in the medical or nursing school curricula or in the medical residency programs. The EEC sees the need for such a void to be filled for the short run, but strongly suggests that the departments with strong research credentials create a parallel track of masters programs designed to prepare and train the students for doctoral studies, based on international standards of excellence.

IMPROVEMENT

Does the Department know how the Curriculum should be improved?

The improvement of the curriculum is delegated to individual programs. All the programs evaluate the performance of their instructors based on student questionnaires. The faculty also evaluates the performance of the students and adjusts the curriculum to follow progress in the field. All the programs have internal governing councils. Four programs refer to improvement of the curriculum based on the advice of an external advisory committee. The Medical school does not appear to have a central

coordinating or regulatory role in the curriculum improvement.

Which improvements does the Department plan to introduce?

No central policy was presented to the EEC or discussed in the section "Strategy of Academic Development" of the internal evaluation report. For this reason, the EEC takes the initiative to make recommendations, described at length in the section F. It is expected that these recommendations will help the graduate programs reach their aims and objectives and attain international standards of excellence. To obtain a better understanding of future policies, we also requested and received from the leadership of the department additional information of their strategic plans pertinent to the graduate programs. It was stated that "the department will support the development of state-of-the-art innovative doctoral programs capitalizing on the expertise and collaborations of the most accomplished members of its basic and clinical faculty". In parallel, "it will support the development of core facilities for genomics, proteomics, advanced imaging and advanced infrastructure through collaborations with Greek and European consortia". Whereas these ambitious plans are welcome, more detailed planning is needed in order to translate strategy into practice. Specific timeframes need to be agreed upon, and anticipated outcomes to be projected and monitored.

B. Teaching

APPROACH

Does the Department have a defined pedagogic policy with regard to teaching approach and methodology? Teaching methods used.

There are no universal guidelines for selection of graduate courses and no curriculum committee for most programs. As a result, each program (or laboratory) sets its own course and laboratory or technical training standards for graduation at both master's and doctorate (PhD) programs. Overall, there seems to be little departmental supervision over the curriculum and education quality control of the graduate programs.

The curriculum involves mandatory courses and some electives that are based on textbooks, e-learning and IT platforms. In some programs current literature is provided, research methodologies are taught and technical training is provided in specific courses. All programs require one semester of diploma work and writing of a review or a thesis based on the results of a research project. There appears to be in many programs duplication of effort. Several faculty give similar courses for different programs at different times and venues.

Teaching staff/ student ratio:Teacher/student collaboration

In most masters programs of the medical school the faculty/student ratio is <1. However, there are great concerns regarding the true teaching staff/student ratio for the 3650 doctoral students. There is a recent rule of <5 doctoral students per faculty member, but it is unclear whether this rule is adhered to and how this is monitored. Based on students' comments the teacher/student collaboration is excellent.

Adequacy of means and resources: Use of information technologies: Examination system.

Textbooks are provided and their cost is covered by the tuition fees, which vary from 500 to 2000 Euros**.** Only the program of molecular medicine does not impose any tuition. All the programs have access to information technology and e-learning and IT platforms and these are considered adequate. Written and in few cases, oral exams are given at the end of the course. If a student fails he/she can retake the exam one more time.

IMPLEMENTATION

Quality of teaching procedures: Quality and adequacy of teaching materials and resources: Quality of course material. Is it brought up to date? Linking of research with teaching

Most of the masters programs have well qualified faculty that has experience in teaching a specific clinical course and have written or translated textbooks that are distributed to their classes. Student questionnaires assign grades in the range 3.5-4.9 for teaching in different courses. Textbooks of good

quality and other teaching material are provided free of cost for every course. Most of the text books are written by the Greek faculty involved in teaching or they are Greek translations or the English versions of well regarded international textbooks. There is no obvious, pre-defined timeframe within which course content and materials are reviewed and renewed. The programs are heavily based on teaching theory and to some extent research methodology; research is performed only during the last semester of each program.

Mobility of academic staff and students: Visiting faculty may come from other universities and in few cases from research institutes or from abroad. In few cases students go to the labs of the international collaborators. With few exceptions, there is little opportunity for mobility of graduate students during the course of their masters or doctoral studies. The EEC recommends the establishment of a student office to promote student mobility and exchange (see recommendations in section F).

Evaluation by the students of (a) the teaching and (b) the course content and the study material/resources grades: The study material/resources

Questionnaires are handed to the students at the end of each course to evaluate the teaching the course content and the study material/resources. Grades in the range of 3.5 to 5 are usually awarded in all the categories. In the questionnaires provided, the students expressed satisfaction for the textbooks, the e-learning and IT platforms and the current literature that was provided in different courses.

RESULTS

Efficacy of teaching: Discrepancies in the success/failure percentage between courses and how they are justified: In most courses the teaching program went as planned. In few courses cancellation and rescheduling of classes occurred**.** Student failure is rare also grades in different courses fluctuate within a narrow range (6.9- 10). The percentage of students with grades greater than 8.5 is 75-80 % in most programs.

Differences between students in (a) the time to graduation, and (b) final degree grades: Whether the Department understands the reasons of such positive or negative results?

Most students graduate within 2 years and the maximum time they can spent in the program is 3 years. Grades of the masters degree are also high and are usually in the 8.5 to 10 range. There is a massive variance for doctoral students. Some appear to finish their studies successfully within 3-4 years but a large proportion of the 3560 doctorate candidates either progresses very slowly or is inactive. The department's view is that the efficiency in the completion of the masters programs and the high grades achieved on graduation reflect the high standard instituted for student admission, the maturity of the students, the fact that they pay tuition and the fact that many of the students have incentive to succeed in order to improve their professional status. There appears to be no departmental policy by which once a student has registered for a doctorate he/she can be removed from the registry. The EEC recommends that such a policy is established.

GENERAL COMMENTS ON IMPLEMENTATION AND RESULTS OF TEACHING:

Critical mass of graduate faculty: The EEC believes that most of the faculty (including many non-academic clinicians and other professions involved in teaching and training) are highly committed and enthusiastic educators. However, the critical mass of faculty with sufficient training and research skills to teach in doctorate (PhD level) programs is limited. The problem is exacerbated by the limited role of the basic science departments in the establishment and direction of most of the graduate programs. Graduate teaching appears to be on occasions linked with research, in other cases it may overlap with undergraduate teaching and in several cases with clinical duties. **Recruitment and renewal of graduate faculty:** The school has not undergone any substantial renewal of the faculty as a consequence of the law for the AEI of 1982 and the practice of internal recruitments and promotion. The EEC strongly recommends that medical school replaces all retiring faculty members by planned, merit based recruitments, of highly qualified candidates from outside the school. Some of the new recruits should be directed towards the strengthening of the graduate programs and spearheading state of the art research.

A strategy is also needed to improve and sustain the research, clinical and educational skills of existing faculty through sabbatical leaves and career development methods.

Setting priorities for the commitment of the faculty: There is a great need for the medical school to develop policies for optimum utilization of all existing human and material resources in order to achieve its educational clinical and research objectives. This is particularly important in view of the reduction of human and financial resources due to the current economic crisis of the country. The time required for optimal contribution of the faculty to the graduate programs should not be underestimated.

Monitoring educational outcomes and student success: There is no established benchmark against which the success of postgraduate courses and doctoral studies can be judged. Records of career outcomes of the graduates were requested but were not available by most programs. The EEC recommends that such records be established to monitor the success of the masters and PhD programs in comparison to similar Greek and International programs.

IMPROVEMENT

Does the Department propose methods and ways for improvement?: What initiatives does it take in this direction?

There is no evidence of a central and clear strategy addressing the improvement in teaching. Any improvements appear to be left to the individual course organizers. Each program takes whatever initiatives considers necessary in order to improve the educational process based on student questionnaires, input from the faculty and in some cases from international or external review committees.

C. Research

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

APPROACH

What is the Department's policy and main objective in research?

The EEC found scant evidence from the internal evaluation report and other material provided regarding the existence of a policy with specific long-term goals and objectives. The internal evaluation report indicated that the school promotes both basic and clinical research but this does not appear to be within the context of long-term goals or in a coordinated manner. Research activities in each department/laboratory are mainly determined by the laboratory head. It was unclear from the internal evaluation report whether the school had a plan or rationale to concentrate and excel on selected areas of biomedical research. For this reason the EEC requested and received from the current leadership of the school an overall strategic plan for research. This plan revolves around

Following the EEC's visit and on our request the current leadership of the school provided an overall strategic plan for research that revolves around the development of Core Bioresearch Facilities and the Greek Research Infrastructure for Personalized Medicine. According to the school's plan "the department will support the development of core facilities for genomics, proteomics, imaging, and other infrastructure through collaborations with Greek and European consortia (ERSF, EATRIS, ELIXIR, INFRAFRONTIER). It was also stated the school will capitalize on the expertise and collaborations of the most accomplished members of its basic and clinical faculty and new recruits to create state-of-the-art innovative doctoral programs that will spearhead research including programs in personalized medicine. The school plans to establish required protocols for Animal Welfare Biosafety and Radiation Safety according to European and American standards and create patent and grant offices, compete for research funds and pursue innovation. The EEC fully supports the School's efforts to develop a strategic plan that can also be used as a road map to measure its future progress and success.

Has the Department set internal standards for assessing research?

In general, the quality of research is indicated by quality of publications, amount of grant money and

international recognition attracted by each program. It is unclear whether the school uses additional internal procedures and standards to access research. The number of publication has increased steadily from 1209 in year 2002 to 2100 in year 2009 with an average impact factor of 2.73. The average h factor for full professors is 25 and for Associate Professors 17. Twenty six faculty have an h factor greater than 40 and one has an h factor of 130. In order to advance academic excellence and promote research, the current leadership of the medical school indicated that they plan to set specified high standards for the qualifications of different ranks of its faculty. Impartial implementation of a meritocratic recruitment/promotion of faculty is very important. The EEC agrees and strongly encourages implementation of the proposed standards and emphasizes the need to replace retiring faculty with recruitment of well trained young faculty with strong research and clinical background.

IMPLEMENTATION

How does the Department promote and support research?

The internal evaluation report did not provide a comprehensive plan for promoting biomedical research, recruiting research oriented faculty and attracting the required financial support. The EEC recognizes that compared to other EU countries the funding of research in Greek academic institutions is very low and irregular. Only 0.6% of the GDP of Greece is allocated to research as opposed to 2% which is the average of the European Union countries. This necessitates development of strategies to be able to attract competitive funds to support research.

Based on the existing information, the EEC recommends that the long-term strategic research plan of the medical school focuses on areas of existing strengths and national and international needs. Such a plan is best developed with the help of a Research Committee, appointed by the dean of the medical school. This committee should identify areas of basic, clinical and translational biomedical research that the school should concentrate on (such as cancer, neuroscience, aging, cardiovascular and other areas of strength, discussed in section A). The committee should explain factors and rationale supporting their recommendation, and describe potential long-term benefits for the Greek society and economy. The committee should also advise the dean and the medical school leadership on issues of fund raising, seed support, core research facilities and related matters. Development of such a plan should also act as a catalyst for the Greek state to be more forthcoming towards providing additional support to the school.

To implement the research plan the medical school should also establish a policy for recruitment of high quality clinical and basic faculty, especially at the junior level, with thorough clinical and research credentials. Recruitment efforts are facilitated within a well-defined long-term research strategy and by the development of a fundraising policy for improving research. The exact components of such a strategy and assessment of success should be stated in future internal evaluation reports and be available for external evaluations.

Quality and adequacy of research infrastructure and support.

At the present time the research infrastructure of the medical school is limited, as well as its quality is limited. There is a need for essential instrument core research facilities shared by many laboratories. Creation of core facilities will reduce the overall cost of research that requires expensive instrumentation and will encourage scientific interactions and collaborations. The EEC believes that the school should be better supported financially by the Greek government in order to advance its research objectives. Such support however, should be conditional and linked to funding from competitive sources. Furthermore, government support should be used as start-up funds for new recruits in order to attract exceptional senior faculty.

With few notable exceptions, the faculty of the medical school has been recruited from within the department and has a relatively poor record in attracting competitive external research funding. This is an important issue that deserves serious consideration by the leadership and faculty of the medical school. Mechanisms to support and monitor grant applications and awards need to be developed, with

regular evaluation of the success of individual faculty members and departments. The information the EEC received on future fundraising and research strategies of the medical school include:

1) Development a core bioresearch facility, and infrastructure

2) Supporting research through the following fundraising mechanisms:

i. Structural funds for regional development for the upcoming period (National Strategic Reference Framework 2014-2020)
ii. National funds for Research and Technology development
iii. FP7 and Horizon 2020 funds (e.g. REGPOT-type actions and others)
iv. International competitive research and technology grants
v. Industrial and other private investments and Charity trusts
vi. Income from provision of services to the academic and industrial research community.

The EEC welcomes all these initiatives. Their success and impact, however, need to be monitored and the strategy updated accordingly**.**

The internal evaluation report did not provide information on policies and procedures that guarantee health and safety of students and staff; human research subjects; animal welfare; biosafety and safe disposal of biological materials; radiation safety. The school needs to establish an Institutional Review Board (IRB) and a uniform policy to cover these aspects. Committees also need to be established that approve research protocols and monitor research compliance and training. A training course should be established for all those who perform research using animals and a certificate of successful completion should be a prerequisite to being able to conduct research with animals. At the EEC's request, the medical school provided plans on how to address these deficiencies, as well as evidence of compliance with the proposed policies in future evaluation reports.

Scientific publications: Research projects: Research collaborations

The EEC would like to commend the faculty for good research productivity shown by a large number of publications in peer-reviewed Journals. Some laboratories/departments have reached internationally competitive levels of excellence shown by their external funding and publications. Areas of research activity at the medical school include clinical, social medicine, psychiatry, neurology, obstetrics, gynaecology paediatrics, oncology, cardiovascular, genetics, surgery and pathology. The school participates in about 1800 research programs with the greatest concentration in the department of Internal Medicine. Most research projects are based more on individual efforts than on being part of a strategic research plan of the medical school. Research, especially translational and basic, is an important component that contributes greatly to the international reputation of successful medical schools. Most research activities of the medical school however, are associated with clinical research and teaching specific clinical applications rather than translational/basic research. This was perceived by the EEC as an important deficiency that the medical school made a commitment to address.

A major concern for the EEC is the seemingly poor collaboration between laboratories. This situation results in duplication of effort and infrastructure, as often different laboratories perform very similar research using similar instrumentation. The school should implement a policy to encourage collaboration between laboratories. This is in accord with prevailing international norms were collaboration is very much encouraged as collaborative efforts result in higher productivity and economize efforts and resources.

RESULTS

How successfully were the Department's research objectives implemented?

As indicated in the approach the medical school promotes good quality of basic and clinical research. The research objectives however are mostly determined by the expertise of individual laboratory heads and are designed to satisfy clinical-procedural-educational requirements of specific laboratories rather than the needs of a well-thought plan for scientific and technological development. It also seems that the school lacks a comprehensive plan for recruitment and promotion of new faculty members. Failure to

attract new faculty impacts negatively on the introduction of new research projects and programs. The school should implement a plan with guidelines for recruitment of new faculty members. This should include seed money for research support for an initial period of at least three years until the successful candidates are able to attract competitive research funds**.**

Research projects: Research collaborations

Based on the internal evaluation report and the additional information we received from the leadership of the medical school strong research projects have been developed in several basic and clinical departments including physiology, molecular biology, biochemistry, pharmacology microbiology pathology cardiology, oncology, endocrinology, rheumatology, autoimmune and infectious diseases and epidemiology/preventive medicine biology and molecular epidemiology.

Research in sciences is driven by quality PhD students. In this regard the medical school will benefit significantly from the implementation of well-structured doctoral (PhD and MD/PhD) programs and provide stipends to the student. The programs should have clear competitive criteria for selection of excellent candidates and guidelines for curricula, required courses, qualifying examinations and committees for approval of thesis proposals. Ideally, such programs should be modeled after similar programs in USA, where they have been very successful. (see sections A and F). The EEC recommends the graduate masters program should closely interact with the PhD program as a means to train rigorously and promote promising candidates to transition from Masters to the PhD level studies.

Collaboration with other institutes (including IIBEA, EIE, Pasteur, Demokritos, etc) in the wider area of Athens in the training and performance of dissertation (PhD) research is strongly encouraged. Athens medical school should take advantage of this great opportunity to collaborate with many other institutes on biomedical research, an advantage not as easily available to other medical schools of the country. Collaborative efforts will greatly benefit both the institutes and the medical school and should contribute substantially to the medical and technological improvement of the country. This relationship can be formalized by instituting joined appointments in the medical school of members of these institutes and vice versa.

Efficacy of research work. Applied results. Patents etc: Is the Department's research acknowledged and visible outside the Department? Rewards and awards.

The School currently lacks policy or infrastructure for protection and commercial exploitation of intellectual property. The EEC strongly recommends the development of an office of Patent and Technological Development modeled after similar offices in almost every major medical center in USA and Europe. Although such an office may be costly to set-up, in the long run will become a great technological resource and a source of income for the medical school. There is hardly any major medical school in the North America or Europe without a very active patent office for the protection of technological innovations derived from the school's research.

Some of the School's research activities and the scientific standing of individual faculty members are acknowledged internationally. However, there is significant variability. The medical school has the potential to lead developments in many health-related areas in the country. This includes providing guidance on public health needs and policy developments on optimal health care delivery and generation of original research leading to clinical applications.

IMPROVEMENT

As mentioned in section A, we received from the school's leadership additional information on the strategic plans for research and infrastructure. In addition to details provided above, the school plans to "support the development of core facilities for genomics, proteomics and advanced imaging and advanced infrastructure through collaborations with Greek and European consortia". The department plans to capitalize on the expertise and collaborations of accomplished members of its basic and clinical faculty to create state-of-the-art innovative doctoral programs in areas with critical mass of experts who will spearhead research including programs in personalized medicine. The EEC fully supports the medical

school's plans to improve and its increase research activities.

D. All Other Services

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

APPROACH

How does the Department view the various services provided to the members of the academic community (teaching staff, students)? Does the Department have a policy to simplify administrative procedures? Are most procedures processed electronically?: Does the Department have a policy to increase student presence on Campus?

Departmental services and policies are similar for the undergraduate and graduate studies and have been described in the EEC report of the undergraduate program. This includes medical insurance, student restaurant access, coupons for discounted public transportation etc. Both the School and the EEC view these services as excellent, particularly in the current circumstances, which may put several students and their families under enormous financial pressures. Athletic-and cultural activities are open to the graduate students if they wish to participate.

It is not clear how well co-ordinated the various strategies, policies, processes and procedures are between the undergraduate, graduate as well as clinical training activities of the medical school. There is no obvious policy aiming to simplify administrative procedures. There is however an excellent website with continuously increasing use and reliance on it and the EEC encourages the management and administration in the School to optimize the use of the website to increase its efficiency. The attendance of classes in the graduate program is obligatory and is reported to be 80-100%.

IMPLEMENTATION

Organization and infrastructure of the Department's administration (e.g. secretariat of the Department): Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic-cultural activity etc.).

Each program has its own administrative support and academic services. The infrastructure varies among the programs and ranges from excellent to above average.

The students have access to the Medical School library, IT platforms and access to internet.

The EEC did not see policies and programs designed to provide individual students with counselling, mentoring or coaching, as they exist in medical schools abroad. The EEC recommends that the medical school establishes such programs (See section F).

RESULTS

Are administrative and other services adequate and functional? : How does the Department view the particular results?

The EEC is concerned that the existing administrative infrastructure of the medical school is not adequate by international standards. There is a lack of core support staff compared with similar organizations in other countries (e.g. central support for human resource management, updates for grant opportunities, provision of expertise for grant writing). These limitations may compromise many of the initiatives that the school wishes to take, and are much needed. The school fully appreciates the productivity of existing administrative staff, and their commitment, despite the fact that many of them do not currently have job security and are in risk of losing their positions.

IMPROVEMENTS

Has the Department identified ways and methods to improve the services provided? Initiatives undertaken in this direction.

The department will consider improvements when recourses become available.

Collaboration with social, cultural and production organizations

Originality and significance of the Department's initiatives.

Socially meaningful is the partnership of the department with the ATEI and the nursing school. This partnership is designed to upgrade the education and training of nurses and other healthcare professionals in cardiology, intensive care, paediatrics and other clinical areas. The various public health and social medicine programs also have the potential to, and do contribute significantly to society. Recommendations are been made in section F on how professional retraining and continuous education should gradually become the responsibility of professional societies and institutions in collaboration, when needed, with the medical school. There are also several other areas of interaction with society at large, for example educational programs raising awareness about specific health risks, open to the public. The interactions of the medical school with the private sector (other than commercial pharmaceutical companies through involvement in clinical trials) at the strategic level are much less evident. The interactions of the medical schools with the society have been also addressed in the EEC's report on the undergraduate programs.

E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

Potential inhibiting factors at State, Institutional and Departmental level, and proposals on ways to overcome them: Short-, medium- and long-term goals:

There is only 1 page (p. 2647) of the internal evaluation report on strategic planning. It is stated 'that the primary goal is the projection of the scientific accomplishments and social (medical) services provided by the school'. The school leadership considers the school to be internationally recognised, of the highest quality and request the support of the ministry of education to allocate funds for new faculty positions. No specific goals were provided for the needs of the graduate programs or other issues that concern the medical school.

Plan and actions for improvement by the Department/Academic Unit: Long-term actions proposed by the Department:

No specific plans or actions were provided in the internal evaluation report**.** The report indicated that the policies of the strategic plans will be implemented by the president and the members of the executive council of the medical school who are highly experienced in issues pertinent to medical education clinical practice and research.

In the absence of plans for short and long term strategies, the EEC requested and received additional information on strategic planning that may affect the graduate programs. It has been stated that the department of medicine will support the development of state-of-the-art educational programs including innovative doctoral programs capitalizing on the expertise of specialized clinical and basic research faculty and will accelerate the development of the medical school's core infrastructure with internal funds and collaborations with Greek and European consortia.

F. Final Conclusions and recommendations of the EEC

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

Conclusions and recommendations of the EEC on:

The development of the Department to this date and its present situation, including explicit comments on good practices and weaknesses identified through the External Evaluation process

It is not obvious to the EEC, based on the CVs we received, whether the critical mass of faculty that are experts in graduate education is sufficient to maintain the existing or support the establishment of new

programs without compromising their quality. Particularly the critical mass of faculty with sufficient training and research skills to teach in doctorate (PhD level) programs is limited. The problem is exacerbated by the limited role of the basic science departments in the establishment and direction of most of the graduate programs.

According to the international standards a prerequisite for any successful graduate program is the critical mass of expert faculty members (ca: 10-15 per program) that have training and experience in graduate education and are actively engaged in research. Without a critical mass of such faculty the quality of the programs is compromised.

The Department's readiness and capability to change/improve

The chairman of the department Dr. Dimopoulos and several faculty members expressed pride on what the medical school of Athens has accomplished in its long history. They also expressed their strong determination to use the external evaluation as a starting point to improve and attain academic excellence. The EEC shares their enthusiasm and applauds them for their attitude and provides guidance bellow how this can be accomplished.

The Department's quality assurance: During the presentations of the department on February 17 the leadership of the medical school indicated that the internal and external evaluation will serve as mirror that will help them maximize their strengths, correct their weaknesses and help them reach a new level of academic excellence.

Recommendations for improvement

I. Restructuring the Programs of Graduate (master's and doctorate) Studies

Based on the facts presented above, the EEC recommends the following changes of the programs: The recommended changes are designed to correct existing deficiencies in the training of MDs and health care professionals (as presented to us) and at the same time to provide state -of-the-art graduate (PhD level) education based on international standards.

Based on the detailed evaluation of each program provided above the EEC classifies the master's programs in three categories: excellent, very good with potential and average to poor. The first category has proper curriculum, critical mass of Greek and international faculty, proper guidance and outcomes that demonstrate that these programs train well their master's students and prepare them to proceed to doctorate (PhD level) studies. The second category trains well nurses and other healthcare or public health professionals, but does not provide rigorous training to the students who wish to enter a doctorate (PhD level) program. These programs should be intensified and restructured as recommended below to achieve this objective. The third category contains programs that can best achieve their objectives as components of other programs or provide the desired training in the context of residency or specialty programs of the medical school.

II. Creation of two types of masters programs in clinical sciences (MCSc and MSc)

The MCSc should be directed towards education and training of the nurses and other health care or public health professionals and the MSc should be directed towards rigorous training of doctorate candidates for medical research in different specialties following international standards for PhD programs. The MCSc programs will encompass several of the existing programs. The EEC recommends that these programs review and update their curricula by an expert curriculum committee, continue their operation for the period they have been approved and decide their continuation based on their performance and outcomes. The masters awarded by these programs are envisioned to advance the professional careers of the graduates and be compatible with the Bologna directives.To the extent that these programs wish to prepare the students for doctoral (PhD level) studies they should develop a parallel intensified curriculum with course work, taught preferably in English, that should be based predominantly on the state-of-the-art literature and to a lesser extent textbooks. They should also include

one year of practical training, field work or research thesis.

The Masters in science (MSc) should be designed to prepare the students to enter a doctorate (PhD level) program. The curriculum should be prepared by an expert curriculum committee that contains members with graduate (PhD) training**.** The EEC recommends that such a curriculum should include one-year courses taught in English on topics of biomedical research that are relevant to the specific program based entirely on current literature of the relevant fields. The courses should be taught by experts that work on the field. The students should be trained in critical thinking and presentation of original papers as well as in writing critical reviews on a specific topic. During the first year the students should complete two laboratory rotations. The second year should include exclusively laboratory research and thematic seminars that will lead to a MSc thesis. At the end of the training the students should be fully prepared to enter into a doctorate program that will lead to MD/PhD for the MD graduates or a PhD for the non-MD graduates as it occurs in several international and one Greek medical school program (at the University of Crete) and is outlined in the molecular medicine program. Encouragement of the most qualified medical school graduates to enrol in the MD/PhD programs will increase their qualifications and will create the next generation of leaders in academic medicine. Furthermore enrolment in such programs will reduce the need to leave the country during the long waiting period required to enter into the residency programs.

III. Use the restructured masters programs to train students for doctorate (PhD level) or MD-PhD studies and creation of strong novel PhD level programs with collaboration of the basic and clinical faculty members.

As the revised MSc and MCSc programs grow and generate graduates well trained in research, prepared to enter doctorate studies, the current doctorate program based on the alternate pathway should be phased out and finally discontinued. The additional information we received from the leadership of the medical school on strategic planning indicates their willingness to pursue the development of state-of-the-art innovative doctoral programs capitalizing on the strengths of its basic and clinical faculty along with the development of the required core facilities and infrastructure. Areas of strength were identified in physiology, molecular biology, biochemistry, pharmacology microbiology pathology cardiology, oncology, endocrinology, rheumatology, autoimmune and infectious diseases, epidemiology/preventive medicine and to the extent possible in omic technologies and bioinformatics. An additional area that emerged from our analysis could be basic and clinical neurosciences'. The EEC estimates that restructured MCSc and few MSc programs along with the new programs will be able to provide 100-150 PhD candidates annually to cover the research needs of the medical school. The proposed changes will provide quality education to the doctorate candidates. In parallel they will transform the research environment, will make the medical school of Athens a center of excellence in biomedical research and will increase its international stature. Such a transformation will attract competitive European funds and possibly international students. Most importantly such changes will create meaningful career opportunities in Greece and abroad for the graduates of the medical school who elect to pursue comprehensive graduate studies.

IV.Creation of clinical research fellowships to support research in the clinical departments

All clinical departments have currently a large number of trainees who are concomitantly working for a doctoral degree (with the alternative pathway). For this reason the EEC recommends that the current doctorate program be changed into a clinical research fellowship to run in parallel or independently of the residency or subspecialty training. This policy applies to all the medical schools of north America and several medical schools of Europe.

V. Integration of Graduate Programs with Research institutes in Greece and abroad

The graduate programs and the research activities will benefit if they link closely with the research institutes that surrounds the medical school of Athens. A new law introduced recently for Research and

Technology allows the research institutes to collaborate with universities in order to promote graduate education leading to a doctorate (PhD level) degree. The 2011 law 4009 for the AEI of the ministry of education supports such collaborations. Five of the current graduate programs have established international collaborations. Similarly, collaborations are possible with leading European and American Universities and Research Institutes, as well as collaboration with leading Greek scientist abroad. Such collaborations will allow continuous training of faculty and graduate students in emerging new technologies, and will increase the competitiveness of the Greek scientists for European research programs. Greek scientists from abroad may serve as advisors to students of graduate programs, as short term lecturers of graduate courses in areas of their expertise and as mentors of the PhD candidates during their thesis work, as well as during their junior faculty appointments.

VI. Foster interaction and exchanges of the graduate programs

For the above stated purpose, the EEC recommends establishment of an annual or bi-annual conference (symposium) of all graduate programs that includes faculty and students in order to present the programs and discuss their annual achievements. The conference should be open to all the faculty and students of the medical school. Similar two-day long symposia occur annually in many medical schools in North America and Europe. In these symposia the students present their work mostly in the form of posters and few selected oral presentations. One or two keynote speakers of international stature are invited to give lectures.

VII. Funding the graduate programs that aim towards doctorate (PhD level) degrees

To attract the best students to the graduate (PhD level) programs it is imperative that the students selected for these programs receive a stipend. This will allow them to devote all their time towards research. Funding for doctoral students could become available, possibly through combination of the following: (a) establishment of competitive graduate training grants by the Ministry of Education; (b) application for doctoral training grants to EU sources (when those exist); (c) include student salaries in research grant applications; (d) applications for individual doctoral training fellowships from IKY and private foundations (e.g. Bodosakis, Onasio, Empirikio); and (e) utilization of University real estate resources if available. The EEC believes that the sustainability of viable doctoral programs is dependent on a vibrant research environment (see section C Research). Recommendations are made to the ministry of education and the Greek government to create competitive funding mechanism to support the top graduate (PhD level) programs and to fund the top students within these programs through internationally established competitive funding mechanisms.

VIII. Renewal of the faculty and start up support for junior faculty

Given the fact that the school has not undergone any substantial renewal of the faculty as a consequence of the law of of 1982 for the AEI and the practice of internal recruitment and promotions, there is an imperative need for corrective action. Based on the fact that a large number of faculty that were tenured by the law of 1982 will be retiring soon, the EEC strongly recommends that the medical schools replaces all retiring faculty members by programmatic merit based recruitments of highly qualified candidates from outside the school. Some of the new recruits should be directed towards the strengthening of the graduate programs and the functional research groups. The EEC also recommends that newly recruited junior faculty be supported with start-up funds. This is critical for allowing them to establish a strong and competitive research program and contribute to graduate education and research.

To increase recruitments of qualified candidates from outside the school the EEC recommends a policy frequently applied by academic institutions abroad that scientists cannot be hired in faculty positions of the school they obtained their PhD from, unless they have spent at least three years of training in another high quality academic institution.

IX. Research infrastructure, protocols and biosafety.

The EEC recommends that the school takes immediate action to establish an Institutional Review Board (IRB) and a uniform policy required for establishment and approval of research protocols and to monitor research compliance and training. Protocols for animal welfare, biosafety, radiation safety should be established based on European guidelines. A training course should be established for all those who perform research using animals and a certificate of successful completion should be a prerequisite to being able to conduct research with animals.

X. Quality controls

All programs should establish a curriculum committee to consider periodically curriculum updating as well as an internal and external evaluation committee consisting of national and international experts. The EEC recommends that internal evaluations take place annually and external every 3-5 years. The recommendations of the external evaluation committee should be implemented. All programs should establish records on the career development of the graduates of their masters and PhD programs to allow comparisons with similar Greek and International programs.

XI. Career opportunities and services for students and graduates

The EEC recommends that the medical school establishes a student office dedicated to providing undergraduate and graduate students as well as graduates of the medical school and the graduate programs with information on the status of the health professional market, specialty and subspecialty markets, biomedical research markets and fellowship opportunities in Greece and abroad.

The EEC also recommends that the medical school establishes services providing individual student counselling, mentoring or coaching for them. All these services were proven to have tangible benefits for the students involved.

XII. Administrative streamlining of research, teaching and clinical training activities.

For many of its clinical and teaching activities the medical school needs to interact with various university hospitals. Two of the hospitals belong to the University and the remaining to ESY. The medical school needs to coordinate undergraduate and graduate education and research as well as postgraduate medical professional specialty training. This is a complex task and priorities in different hospitals may occasionally conflict. It is unclear what the administrative infrastructure is for each of these activities, how much they overlap and how effectively they communicate. The EEC recommends that the medical school needs to clarify the administrative responsibility for these diverse functions. These functions are of major operational and financial importance for the sustainability of the medical school and its ability to provide top quality health care services, education, training and research. It also recommends to use the opportunity to work together with the agencies that contribute to health care delivery in order to combine its educational and research activities with the current and future demands in health care services in the country. The EEC also recommends creation of patent and grant offices.

XIII. Recommendations to ADIP

1**.** It is important that the internal evaluation becomes available to the EEC members at least one month prior to the site visit.

2. To facilitate the review process it will be important that the main body of the internal evaluation report is much shorter and contain appendices of the required tables, appendices containing short biographical sketches (2-3 pages) along with summaries of research of the faculty members, an appendix of medium and high impact research publications, and if available an appendix of any external evaluations by international committees of undergraduate, graduate or clinical programs. Other appendices that are considered important can be compiled and be available for inspection by the EEC during the site visit.

XIV. Recommendations to the Ministry of Education and the Greek government:

1. Reinstatement of the position of the dean of graduate studies: The law 4009 of 2011 had

provisions for creation of the position of a dean of graduate studies to coordinate and set procedures and policies for graduate programs. Such positions exist in most universities abroad that have a large number of graduate programs and will be of great value to streamline the programs of the medical school of Athens.

2. Establishment of support mechanisms for the Graduate Programs based on excellence: To achieve excellence in graduate education it is important that graduate students have a minimum of financial support so that devote their full time effort initially to their intense course work and subsequently to their research. This can be accomplished by:

a. Funding by the ministry of education of top graduate programs with competitive grants that can lead to the creation of centers of excellence in graduate education.

b. Establishment by the ministry of education competitive research fellowships that will provide student salaries to the top graduate (PhD level) students in order to pursuit PhD studies, similar to those provided previously by the Heracletus program.

XV. Recommendations to the Ministry of Health and the Greek government:

The EEC believes that the antiquated waiting list method of entry into specialty training (residency) may operate actually as a major "incentive" for qualified medical school graduates to leave the country. This is counterproductive for the Greek economy, as well as for individuals and institutions striving to achieve excellence within the country. For this reason, the EEC recommends that the waiting list method of selection for residency positions to be abolished. Instead, residents should be selected on the basis of national exams taken during the sixth year of the medical school program or after graduation. This is a ripe idea as a similar proposal was made by the EEC that evaluated the Medical school of Thessaly and similar practices are followed in North America and other European countries.

The Members of the Committee

Name and Surname	Signature
Professor Vassilis I. Zannis (President)	_____
Professor George D. Kitas	_____
Professor Nikolaos K. Robakis	_____
Professor Othon Iliopoulos	_____