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**L1 SALZBURG II RECOMMENDATIONS: EUROPEAN UNIVERSITIES ACHIEVEMENTS SINCE 2005 IN IMPLEMENTING THE SALZBURG PRINCIPLES**

**Jean Chambaz**

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The knowledge society requires the creativity and flexibility of the research mindset in all sectors, and the doctorate has increasingly achieved recognition as a key part of this process. Reform of doctoral education has been central to the European research and Higher Education Areas over the past decade, with the Salzburg principles as a key milestone. In line with these principles, the Salzburg II recommendations, based on European universities' achievements, stress that doctoral education rests on the practice of research. This demands that institutions ensure critical mass and diversity, research capacity and inclusive environments by establishing doctoral schools. Doctoral education is an individual journey and doctoral schools must give support to individual development and not produce uniformity or predictability. For that means they have to expose early stage researchers to a wide range of opportunities ensuring personal and professional development. The Salzburg II recommendations highlight clues for success and draw directions to clear the obstacles.

<sup>1</sup>[www.eua.be](http://www.eua.be)

**L2 TRAINING AND CAREER OF RESEARCHERS IN THE INNOVATION UNION**

**Peter van der Hijden**

*European Commission DG Research and Innovation (Skills Unit)*

Speaker will introduce recent EU initiatives as regards the training and career of researchers against the background of the Europe 2020 Strategy, the Innovation Union and the completion of the European Research Area. He will refer to the ongoing consultation on the Green paper "From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation Funding". Special attention will be given to the envisaged Principles on Innovative Doctoral Training and the example set by Orpheus.

**L3 STANDARDS FOR PhD EDUCATION: THE ORPHEUS EXPERIENCE**

**Michael J Mulvany**

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The current international emphasis on building knowledge-based societies has increased the need for researchers and their international mobility. The PhD degree is a basic qualification for research, and it is therefore desirable, indeed necessary, that there be general agreement on what the degree entails. As a step towards setting standards, ORPHEUS (Organization for PhD Education in Biomedicine and Health Sciences in the European System) produced a position paper ([www.orpheus2009.org](http://www.orpheus2009.org)) defining the basic elements of PhD programmes in this field. The paper is based on a consensus obtained with representatives from 72 faculties from 33 countries. Key points include: (a) The PhD is a research degree performed in a strong research environment. (b) Enrolment to a PhD programme is normally based on a completed Master's degree. (c) The overall aim is to produce a qualified researcher, evaluated by the PhD thesis and an oral defence of the scientific results. (d) The length of a PhD programme should be 3-4 years and include theoretical training not exceeding 6 months. (e) A PhD programme should be structured, with qualified and regular supervision. (f) The benchmark for the content of a PhD thesis is a review and three published international articles or equivalent publishable manuscripts. (g) Theses should be evaluated by independent panels, normally including international members. Although the detailed programmes of graduate schools vary, the agreement regarding the above points is remarkable, in particular the intellectual level required for a satisfactory PhD thesis. The position paper could thus form the basis for preparing formal standards for PhD education.



**L4 STANDARDS FOR DOCTORAL DEGREES IN THE MOLECULAR BIOSCIENCES: RECOMMENDATION OF THE INTERNATIONAL UNION OF BIOCHEMISTRY AND MOLECULAR BIOLOGY**

**Susan Hamilton**

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In 1989, the (then) International Union of Biochemistry published for the first time a set of Standards for the Ph.D. Degree in Biochemistry and Molecular Biology. This was a time of unprecedented growth in the molecular biosciences, and also of fragmentation into specialisations such as developmental biology, neuroscience, molecular cell biology, structural biology and molecular pharmacology. The IUB document articulated a clear and relatively generic set of standards for the PhD across these specializations.

These standards have been revised in 2010 to accommodate the additional significant changes to the research environment in the molecular life sciences research in the 21st century, in particular the advances in genomics and associated use of computing, the increase in interdisciplinary research and systems-based approaches, the impact of industry funded research, the drive to develop applications of basic science and the associated emphasis on intellectual property.

These revised Standards emphasize (i) the desired characteristics of those awarded a doctor's degree in a Molecular Bioscience; (ii) suggestions as to how these abilities may be acquired and how their attainment may be assessed; and (iii) suggestions regarding the criteria for the overall evaluation of candidates. They are intended as an aid to university departments and boards of graduate studies, to national organizations that set standards for graduate education, to those scientists who serve as external examiners to evaluate theses, and to candidates for a degree in these sciences.

**L5 SCIENCE, RESEARCH AND PHD EDUCATION – THE VISION OF FEBS**

**Tomaš Zíma**

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FEBS - Federation of European Biochemical Societies has been founded in 1964 and it has 43 member societies including approx. 40,000 members. The mission of FEBS is "To support and promote molecular life sciences within Europe". In order to be a member of FEBS, you need to be a member of any of our 43 constituent societies. The most activities of FEBS are focusing on young scientists including fellowships, advanced courses, educational activities, youth scientific forum, etc. Fellowships of FEBS are divided to Short-Term Fellowships which are awarded for the purpose of scientific collaboration, advanced training or employing techniques not available at the candidates' usual place of work. Long-Term Fellowships are awarded to support long-term visits for the purpose of scientific collaboration or advanced training. Other types of fellowships are Follow-up Research Funds, Summer-Fellowships, Collaborative Experimental Scholarships for Central and Eastern Europe and Return-To-Europe Fellowships. Very important training activities of FEBS are advanced courses which are divided to lecture courses, practical courses, workshops and special meetings which are organised across the Europe and young scientists – PhD students are supported by FEBS youth travel grants.

FEBS with cooperation of national societies annually organised the FEBS congresses which are focusing on wide-spread areas of biochemistry and molecular biology research. These congresses are the first international congress for majority of PhD students where they should present their results. Half of the participants of FEBS congresses are researcher younger than 30 years old. The Youth Scientific forum – "congress of approximately for 130 young researchers" is fully supported by FEBS and accompanied the FEBS congress. During the congress other activities are organised to promote young scientists' career.

The educational committee of FEBS organized many events for postgraduate education in different countries e.g. Greece, Bulgaria, Croatia, Italy, Slovakia. The vision of FEBS is: A competitive Europe - Europe as the nest and preferred choice/environment for excellent researchers and we support young researchers - PhD students because they are our future.

**L6 PHD EDUCATION FOR BIOMEDICAL SCIENTISTS IN THE UNITED STATES**

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Most students in the U.S. enter Ph.D. programs in the biomedical sciences after completing a Bachelor's Degree. Academic achievement and laboratory experience are major criteria for admission. Students are paid a competitive



stipend and have all fees paid by the program or mentor. Often admission is into an interdisciplinary umbrella program where additional didactic material and laboratory rotations are completed prior to choosing a mentor. This allows students to sample several disciplines, training programs, and mentors. Mentor selection is accompanied by the selection of a degree-granting program which may have additional didactic or programmatic requirements. After the completion of programmatic requirements, a comprehensive qualifying examination in the student's area of study must be successfully completed after which the student is referred to as a doctoral candidate. Qualifying Examinations often contain both an oral and written component that may cover discipline specific and general knowledge, research plans for degree completion, or both. Doctoral candidates spend most of their effort in directed research with the mentor. The candidate's research is overseen by a faculty committee that must approve both the body of work and the written document. Most trainees publish at least one, non-review, peer reviewed, first author paper. The average time to Ph.D in the biomedical sciences is 5.7 years. Best practices in graduate training are addressed by several groups with the most influential being the National Institutes of General Medical Sciences.

**L7 POSTGRADUATE EDUCATION IN TURKEY AND THE CONTRIBUTION OF TURKISH BIOCHEMICAL SOCIETY**

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Postgraduate education has two phases in Turkey. Before 1980, universities were administered according to the law 1750. According this law, even governmental universities, were more independent in their budget managements but there were no coordination between universities. Each university had its own rules for accepting students to both undergraduate and graduate education. Some universities had MSc, PhD programmes but some did not. In medical faculties, in our knowledge till 1980 only Hacettepe Medical Faculty had MSc and PhD programmes. Other universities had only medical specialist programmes. After 1981, a new Constitution was prepared and a new university law based on items 130 and 131 in that Constitution, "Higher Education Law 2547, YOK Kanunu", was prepared. According to 2547 YOK Kanunu undergraduate and graduate education was re-organised.

Turkish Biochemical Society (TBS) established in 1975 and after its establishment it became a member of FEBS (1978), IUBMB (1978), BCLF (1996), EFCC (FESCC, 1997), IFCC (1997). TBS had organised several workshops to contribute to the undergraduate and graduate education in biochemistry, molecular biology and clinical biochemistry. Four workshops on undergraduate and graduate education were organised together with the Educational Committee of IUBMB (in 1989, 1991, 1998 and 2000). Turkish Biochemical Society had organised 23 National Congresses with International Participation. TBS also had organised three BCLF meetings, three BBBB meetings, one FEBS Congress. A Worldlab Congress is going to be organised in 2014 in Istanbul. Thirty two (32) theoretical and practical workshops on different areas of biochemistry, molecular biology, statistics, and clinical biochemistry were also organised by TBS.

TBS also contributes to biochemistry, molecular biology and clinical biochemistry education via its journal "Turkish Journal of Biochemistry" (TrJBiochem) which has been published since 1976, on quarterly basis. Basic and clinical research, as well as reviews, are accepted for publication. It is indexed by SCI Expanded, Journal Citation Reports/Science Edition, Chemical Abstracts, Directory of Open Access Journals, Index Copernicus, Embase, Scopus, UlakbimTürk Tıp Dizini, Ulrich's Periodical Directory, EBSCO.



**L8 ORPHEUS-AMSE-WFME STANDARDS**

**Michael J. Mulvany, Jürgen Deckert, David Gordon, Hans Karle, Zdravko Lackovic, Stefan Lindgren, Luis Martinez Millan, Jadwiga Mirecka, Sergio Tabagari**

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Since 2008, discussions between ORPHEUS, AMSE (Association of Medical Schools in Europe) and WFME (World Federation of Medical Education) have agreed the desirability of bringing together, in a common format, the ORPHEUS position paper on standards for PhD education and the WFME standards for medical education. The aim is to create a



reference document for use in European universities and medical schools, to enhance the quality of PhD programmes in biomedicine and health sciences.

The executive committees of all three organisations agreed the establishment of an international Task Force. The objective of the Task Force was to produce a set of standards for PhD education in biomedicine and health sciences in Europe, building on and adapting existing work such as the WFME Global Standards framework, and the ORPHEUS position paper "Towards Standards for PhD Education in Biomedicine and Health Sciences". It was recognised that, depending on the outcome of the work of the Task Force, these quality assurance standards might be of world-wide utility, with necessary local adaptations. The Task Force has now prepared a draft that has been distributed to all participants in the conference. The purpose of the session is to discuss the document and the extent to which it could be a practical means of maintaining and improving the quality of PhD education.

L9

### THE PhD STANDARDS IN THE CONTEXT OF THE MARIE CURIE ACTIONS

**Sergio N.A. Di Virgilio**

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The Marie Curie Actions are entirely dedicated to human resources in research and support the training and professional development of researchers including those undertaking PhD studies. They have developed significantly in orientation over time, from a pure mobility fellowships programme to one dedicated to stimulating researchers' career development. Training is provided by both the public and commercial sectors and the importance of complementary skills training is recognized. This ensures that researchers trained are able to continue their careers in the sector of their choice. The funding also builds networks and strengthens the ties between the participating institutes including universities, commercial organisations active in research and research organisations; networking activities being a key component.

Researchers funded by the Marie Curie Actions are professionals in the early stages of their career and as such are recruited on employment contracts with full social security rights. They receive a competitive salary and an allowance to cover costs related to their international mobility. Funding is provided for up to 36 months for each researcher.

The Marie Curie Actions are open to all fields of research and do not predefine disciplines that will be supported. The biomedicine and health areas of research accounted for around 25% of the projects funded.

During the 6<sup>th</sup> FP (2002-2006) 4141 contracts were signed by Marie Curie Actions and today more than 5000 Grant Agreements have already been signed under FP7 (2007-2013). More than 50 000 fellows have been trained since Marie Curie Actions were launched. Today these Actions represent an impressive reservoir of information from which the European Commission is currently working on the dissemination and valorisation of the best practices some of which will be presented during this ORPHEUS-İZMİR Conference.

L10

### PHD QUALITY FROM THE STANDPOINT OF THE EMPLOYERS

**Mike Hardman**

*AstraZeneca, R&D Science Policy, UK*

PhD students are the new generation of scientists. They are enthusiastic, innovative and question traditional wisdom – all of these are essential for the future of science. They create the new ideas, which need to be nurtured in a "greenhouse" until we know which ones will grow.

The model for PhD training has evolved and not only includes developing scientists capable of excellence in research, but also includes an understanding of innovation, entrepreneurship and collaboration. This is an enhanced skill set combining "blue sky" research and the application of science.

The industry employers are increasingly recognizing the need for collaboration with academia, and Public Private Partnership (PPP) PhDs are an important element in achieving this. These PPPs allow the PhDs to work across boundaries and develop a better understanding of the different needs of academia and industry. This is important for both their initial research and for future collaborations. These PPP PhDs are also better equipped to move across boundaries, thus promoting another critical success factor – mobility.

EMTRAIN is working to increase and strengthen the PPP PhDs. We aim to develop a cohort of industry-aware PhD students, with an enhanced skill set (including innovation, entrepreneurship and drug development) and to establish an interactive community thus promoting greater communication and mutual support.



L11

STANDARDS AND QUALITY OF A PhD IN PHARMACOLOGY - A UK PERSPECTIVE

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In principle, higher education institutions in the United Kingdom have responsibility for developing their own PhD format and regulations. Despite minor variations, there is a high level of consistency between institutions in the academic standards required for the award for a PhD degree; the format of the PhD thesis and the process by which PhD examinations are conducted. The Bologna Process is now focusing on the potential harmonization of PhD education across Europe. The Bergen Communiqué (2005) by European Ministers Responsible for Higher Education indicated an aspiration of doctoral degrees being “fully aligned with the EHEA overarching framework for qualifications using the outcomes-based approach” (1). These discussions have been informed by a framework for alignment of biomedical and health science PhDs produced and updated by ORPHEUS (2). This presentation will pinpoint potential benefits and risks to UK institutions from the European standardization of PhD education with particular reference to pharmacology. It will highlight the distinction between strategies of standardization of the PhD process and mechanisms of quality assurance. A general reluctance by the UK academic community for change was highlighted in a recent survey instigated by the British Pharmacological Society. This pilot study concluded that whilst UK pharmacologists see the need for higher quality PhD supervision, they are generally reluctant to adopt a Europe-wide model of PhD education, preferring to retain key elements of apprenticeship-style training and examination by monographic thesis and viva voce by two examiners. A UK workshop on PhD standards in Pharmacology was convened in early April 2011 to triangulate the results of this survey and a position statement will be reported at this meeting.

(1)[http://www.bologna-bergen2005.no/Docs/00-Main\\_doc/050520\\_Bergen\\_Communique.pdf](http://www.bologna-bergen2005.no/Docs/00-Main_doc/050520_Bergen_Communique.pdf)

(2) <http://www.orpheus2009.org/position%20papers.html>



L12

ELEMENTS OF STRATEGY FOR EDUCATION AND TRAINING IN BIOMEDICINE WITH R&D PERSPECTIVES IN FRANCE

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The National Strategy Council for health industries recently (2009) emphasized the urgent need for an evaluation in France of the education and training procedures in biomedicine to further reinforce translational and clinical research with the view to face the rapid evolution of scientific knowledge, current technologies and the need of pharmaceutical industry. The committee specially emphasized the need for development of new training curricula in the field of biotechnologies which could be at the origin in the near future of about 50% of innovative medicines. These curricula could be coordinated at the national level and could take into account the necessity for a trans-disciplinary approach of R & D to improve basic knowledge of the student not only in biology and medicine and pharmacy but also in marketing, economy and legislation. The proposal was made to promote the development of innovative curricula involving MD-PhD, Pharma-PhD and engineer-PhD courses. In this respect new programs could be initiative to promote cooperation between public and private research in selected centers of excellence for PhD curricula including such orientations to translational research, biotechnologies and involving cooperation with pharmaceutical industry at the national and international level.

L13

IMPLEMENTATION OF ORPHEUS STANDARDS – CHARLES UNIVERSITY OF PRAGUE

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The Charles University of Prague was founded in 1348 and now, including 17 faculties with 52 000 students on different educational levels, important part of them are PhD students. There is 5 medical schools, school of pharmacy, mathematics and physics and natural sciences. These Schools have accredited many PhD programs focusing on biomedicine. The admission to our PhD programs totally free, it can be made concurrently after Master's program. Our admission criteria includes the project proposal, approval of supervisor and the head of department. The entry oral exam consists of basic knowledge of studied subject, knowledge of English and discussion of proposed PhD project. The criteria for enrolling the students are - the scientific quality of the commitment and stipend and the maximum by our law is 8 years. The stipend was done by University, our research oriented university fully granted the enrolling the PhD students.

The program of biomedicine is program organized together with Academy of Sciences. The structure of PhD program contains daily research and scientific training, international exam in English, participation on 1 or 2 courses organized by scientific board of PhD program (focusing on modern trends in the scientific disciplines, etc.). During the study the PhD student must be minimally the main author of original article published in IF ranking journal and co-author of one or more original papers related to the PhD project. Before the evaluation of PhD thesis, the students must successfully pass the governmental oral exam of the studied subject. The PhD thesis should be written in Czech or English language. Assessment committees are appointed by the dean of the faculty. The committee selects the two external persons for independent review. The PhD student oral presented his scientific results and thesis, reacted to the report of reviewers and questions by the committee and auditorium. The secure voting made the results with is approved by the Faculty. In 2009, 158 PhD students successfully graduated on the five medical faculties. The Charles University is comparable according the Orpheus standards approved in Denmark in 2009.

**L14**

### **SCIENTIFIC PUBLISHING AND THE PhD**

**Roland Jonsson**

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To publish research results is one of the fundamental outcomes of PhD training. Failure to publish reflects badly on the reputation of a scientist and is likely to influence significant on the future career and to attract further funding. Success in publishing contributes to rewards such as job promotion and professional recognition. A scientific article that is published in an international, peer-reviewed journal is an important goal for any researcher and remains one of the ultimate markers of research success. Recent developments in scientific publishing for example open access influences highly the choice of publishing channels. Bibliometric methods like impact factor, citation profiles, h-index etc. has also to be considered. Traditionally the Vancouver rules are important guidelines for PhD candidates to follow as well as practices for author and co-authorship. The PhD has to be confronted with all this during the training period not the least learn how to survive peer-review.

**L15**

### **SYSTEM OF RESEARCH STAFF TRAINING IN RUSSIAN FEDERATION**

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In Russian Federation practices a two-level system of research staff training comprising postgraduate and doctorate training. Postgraduate training includes studying in one branches of knowledge, i.e. medicine, biology, chemistry, pharmacy, psychology, veterinary and so on. Postgraduate training can be full-time (3 years) or part-time (4 years). The second level of training (doctorate training) can be full-time only (3 years). Postgraduate training implies preparation for the defense of a thesis for the degree of Candidate of Sciences, and doctorate training – for the degree of Doctor of Sciences. The postgraduates' curriculum includes courses on history of philosophy and science, a foreign language, computer science, pedagogy, and in-depth study of the chosen profession. Upon completion of courses in history of philosophy and science, a foreign language and health profession, students take their qualifying examination for the Candidate Degree that proves the student's academic qualification. At the same time students are engaged in their principal research and teaching activities. The process of writing of a research thesis ends in its public defense, meanwhile the research results have to be published in national and peer-reviewed press.

**L16**

### **IMPLEMENTATION OF ORPHEUS STANDARDS IN TURKEY**

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Growing interest in Turkish science is an evidence of the increased visibility of the country in the global arena. Turkey has increased its global share of scientific output from 0.7% in 2000 to 1.9% in 2009. Since 1990s, universities have adopted promotion rules that require academics to publish in ISI-indexed journals. Biomedical research dominates Turkish



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ABSTRACT BOOK

KEYNOTE LECTURES- SESSION 3<sup>rd</sup>



research, akin to West Europe. Therefore, graduate education in health sciences could serve as a vantage point to monitor the overall research activity. There are more than 60 graduate study institutes in Turkey that are responsible for the administration of MSc and PhD programs in health sciences. Number of universities has grown fast in the last 20 years and there is a considerable gap to fill academic positions.

Turkey performs better than the average in implementing Bologna principles, including ECTS. PhD education was modeled after US system. A typical study consists of a course period, qualifying exam and followed by the thesis work that lasts overall 4 years with a possible extension of 2 years. Admission is competitive and transparent. The Higher Education Council (HEC), rather than universities sets the base admission criteria. Although there is no such a formal distinction, doctorate studies in health sciences could be divided into 2 broad categories: research PhDs and professional/applied PhDs. Most graduates who later wish to pursue an academic career publish their thesis works in indexed journals. Publication incentive is low in some fields where overrated professional expectations result in lower quality theses. According to recent HEC rules, at least 5 academics (1 full professor) are needed to start a PhD program. However, stringent criteria are needed to assess the institutional research environment.



6<sup>th</sup> ORPHEUS Conference in the Dokuz Eylül University

ABSTRACT BOOK

SHORT COMMUNICATIONS - SESSION 4<sup>th</sup>



SC1

REGULATIONS GOVERNING PhD STUDIES IN ITALY

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The Italian Universities announce public competitions for admission to the three-year PhD programmes every year. The competition is open to any candidate, regardless of age or nationality, who holds a degree from Italy, or an equivalent academic qualification from a foreign University. Candidates who have a foreign academic qualification must submit any relevant documents useful for verifying equivalency (degree certificate with a list of exams passed, along with an Italian translation, an authentication, and a "declaration of validity" issued by the competent Italian consular) to the State Examinations Office, PhD and Masters Programmes. Selection committee is appointed by Rector and composed of three permanent and two substitute members, all of whom have expertise in the academic discipline of the School. The selection procedure is based on the evaluation of academic and research records and exams taken by the candidate. An interview might be required which may also include a language proficiency test in English. At the end of the selection process, each committee will publish a final merit-based list ranking the candidates. Candidates will be admitted to Programmes according to their positioning on the merit list. The number of study scholarships assigned is awarded according to the positioning of candidates on the final merit list. Doctoral research requires a full-time commitment. PhD students are required to perform the research projects assigned to them and also be involved in related study, further research, and teaching, in accordance with the requirements set by the competent School authority. The PhD is awarded upon completion of the course of study, once the student passes the final examination. The examination consists of an interview with the candidate focusing upon the student's final thesis. The examining committee is appointed in accordance with the University Regulations governing Doctoral Research Schools and PhD Programmes. The title of PhD is awarded by the Rector, certifying the conferral of the degree.

SC2

CURRENT STATUS OF PhD EDUCATION IN BIOMEDICINE AND HEALTH SCIENCES IN PAKISTAN

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In 2003, Higher Education Commission (HEC) under the chairmanship of Dr. Ataur Rehman replaced the existing body UGC. It has completely revolutionized higher education in Pakistan. During last 8 years, number of new universities has increased from 82 to 133 with enrolment jumping from 135,000 in the 2003 to 400,000 in 2008. Nearly 5000 Ph.D.





scholarships have been awarded for studies abroad beside 3,000 indigenous Ph.D. scholarships. As a result international research publications from Pakistan increased from 600 in 2003 to 4300 research papers in 2008. The World Bank has termed it as "Silent Revolution". Although in biomedical subjects taught in universities, the ultimate goal is Ph. D. nearly 200 Ph. D.s have been produced during this period, in purely medical institutes (69 undergraduate and 5 postgraduates) the focus after MBBS\* is on FCPS\*\* and MCPS\*\*\* instead. There are almost 110,000 registered doctors at present in Pakistan and nearly 20,000 have FCPS/MCPS diplomas, but there are not more than 300 M. Phil. and 30 Ph. D.s. There are no Ph. D. dentists or nurses in Pakistan. There is clearly a lack of will to direct this system towards doctoral studies.

\* MBBS Bachelor in Medicine and Bachelor in Surgery

\*\*FCPS Fellow of College of Physicians and Surgeons

\*\*\* MCPS Member of College of Physicians and Surgeons

SC3

**NEW THESIS REGULATIONS AT THE CHARITÉ BERLIN was replaced for a wish of the author.**

SC4

#### PhD EDUCATION IN BULGARIA

**Prof. Diana Petkova**

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The PhD education in Bulgaria is the third degree of high education after bachelor and MC degrees. Every year Bulgarian Academy of Sciences and Universities educate about 1000 PhD students. From them about 120 are in Health sciences and biomedicine. The main Universities which educate PhD students are Medical Universities in Sofia, Varna, Plovdiv and Bulgarian academy of Sciences. PhD thesis might be in biosciences, clinical medicine and social medicine. Each institute and University which has permission for education of PhD students has special rules for obligatory numbers of credits. These credits are necessary for the successful termination of PhD education. These numbers are different for the different Research Institutes and Universities but they are usually about 250. These credits are from three educational modules such as:

1. Common special education. This module includes successful pass of two special courses on methodology and theory of each PhD thesis.
2. Individual special education which is planned by the mentor of PhD student.
3. Common academic education which include computer skills and foreign language.
4. Mentor of PhD student is allowed to be only Assoc. Prof or Full Professor.

The other credits come from publications and participation in scientific forums.

Lecturers are well-known professors who are teaching courses on modern methods and on recent results in the science or in interdisciplinary science which is connected with the PhD thesis of the student. The lecturers might be from the host university or from other Institute or University. There are some PhD schools organized by Universities and Research Institute for successful education of the students. Such kind of schools are organized already in Sofia University, Bulgarian academy of Sciences, Plovdiv University, Varna Medical University, Medical University of Sofia. These courses are about



30 lectures. A PhD student is allowed to defense his PhD thesis when he finishes experiments and has fulfilled these 250 credits. According to the new Bulgarian Law PhD students defense their PhD thesis before a jury formed of 5 persons, who are Assoc. or Full professors. They choose two reviewers and everyone of the scientific jury evaluates the PhD student report.

SC5

**THE MASTER OF SCIENCE DEGREE (MSc) IN CLINICAL BIOCHEMISTRY AND MOLECULAR DIAGNOSTICS, WHICH OFFERS THE OPTION FOR THE OBTAINED A PhD AS A MODEL EXAMPLE FOR POSTGRADUATE STUDIES IN GREECE**

**By Emmanuel G. Fragkoulis**

*University of Athens, Interdisciplinary Post graduate Programme , In Clinical Biochemistry and Molecular Diagnostics*

According to Greek Law, Graduate students wishing to proceed in the obtainment of a Ph.D degree are obligated to have completed a Master's Degree, in a field that is scientifically relevant to their prospective PhD thesis. On the other hand, the Biosciences are developing in quite rapid rates, and therefore demand executive personnel, at different levels, that possess the required educational skills, in order to adequately cover the human resources needed in the Public and Private sectors. The postgraduate Programme in "Clinical Biochemistry – Molecular Diagnostics" is addressed to Graduates of Medicine, Biology, Chemistry, Nursing and Pharmacy from Greek Universities, as well as, to Graduates of related disciplines from foreign Universities. According to the Curriculum of this Interdisciplinary Graduate Programme, the first three semesters are composed of thirteen courses at the advanced level. During the fourth semester the postgraduate students perform the necessary experimental work towards the completion of their postgraduate Thesis, under the supervision of qualified academic supervisors. The completed Thesis results, along with the written Thesis document, is evaluated by a three-member committee of academic experts and is presented in a public seminar in the presence of an audience. Graduates of the postgraduate Programme in "Clinical Biochemistry – Molecular Diagnostics" receive a specialized Master's Degree and have the possibility to work in the Public or Private sector. The graduates however have the possibility of continuing their studies towards the acquisition of a Ph.D degree. Towards this direction, the bylaws of this Graduate programme give them the opportunity to continue and expand their postgraduate Thesis work. Furthermore, they are credited with the coursework that they have performed during their 2 year study. This postgraduate programme, in our opinion, represents a model system for postgraduate studies in Greece in the area of Biosciences.

SC6

**DOCTORAL EDUCATION IN BIOMEDICAL SCIENCE: PRACTICE AT THE MANCHESTER METROPOLITAN UNIVERSITY**

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Biomedical science research at the Manchester Metropolitan University (MMU) is concentrated in the Institute for Biomedical Research into Human Movement and Health (IRM) which has research lines in the areas of ageing, diabetes, molecular and cell biology, angiogenesis and vascular biology, neuromuscular function, musculoskeletal mechanics, neural and visual control of movement and infection and immunity.

The PhD programme in biomedical science requires a minimum of 3-years of full-time and 5-years part-time study. The supervisory team consists of a Director of Studies and at least one other supervisor. All students undergo a supporting programme in addition to their research and are required to maintain a personal development portfolio (PDP) with records of annual reviews, skills audit and completion of both generic and subject-specific courses. Monitoring of progress is by evaluation of an initial research proposal and by annual independent assessments. In addition, all students are initially registered for a Masters degree with a view to transfer to PhD after 12-15 months of study following the successful completion of a written report and viva. The initial proposal, transfer report and annual assessments are conducted by the Faculty Research Degrees Committee which reports to the University Research Degrees Committee and Academic Board. The Research, Enterprise and Development (RED) Office at MMU supports doctoral education by providing training for academics on research degree supervision and examination and a series of generic training courses for students to develop their skills in research methods, communication, ethics, team working and time management. In addition, the RED Office organizes an Annual Research Student Conference enabling students to present their research.

The training programme for PhD students in biomedical science at MMU allows for the development of generic and subject-specific research skills tailored to the needs of individual students together with regular monitoring to ensure satisfactory completion of their research programme.



SC7

**DOCTORAL EDUCATION IN PHYSIOTHERAPY IN SWEDEN**

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In 1998 physiotherapy education was integrated into Swedish universities. At the moment, physiotherapy education is offered at eight universities, seven of these also provide education on doctoral level, the third cycle in the Bologna process. Six of the doctoral programs are given at medical universities and one at a technical university. At the moment there are approximately 350 out of 11 000 physiotherapists, who have been awarded a PhD degree. There has been a rapid growth from 100 PhDs in physiotherapy in year 2000 to 350 in 2011. Most of them work within the academic system as professors or associate professors but also in health care and other sectors in the society. The structure of the doctoral program in physiotherapy is similar to any other PhD program at university level with four years of full time study. Each doctoral candidate must have an individual study plan that provides guidelines for the four years of study, consisting of a literature course, doctoral courses, and a research plan for the dissertation field, a time frame and financing plan. In order to strengthen research in physiotherapy, doctoral courses are given at all universities and are open for applicants from the whole country. A major part of the dissertations within physiotherapy are within the musculoskeletal and neurological fields. Other important areas are ergonomics, motor control and physical activity/inactivity related to rheumatic diseases, cardio respiratory problems etc. There is research cooperation between the Nordic countries and also internationally. Regularly a Nordic research meeting is arranged.

SC8

**KEY PERFORMANCE INDICATORS FOR PhD EDUCATION IN BIOMEDICINE AND HEALTH SCIENCES**

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With the increasing shift in focus from basic science to translational research, stronger emphasis has been placed on developing research expertise for real-world applications. A well-designed PhD programme set out to meet the exacting standards and novel requirements in the field of biomedicine and health sciences is therefore essential in the 21st century.

Other than stream lining the objectives with the Bologna Process, experiential projects and research have also been actively integrated into the PhD programmes in Europe to meet the quality assurance and outcome assessment criteria in our modern society. The quality of a PhD programme therefore should be assessed both by drawing references to the academic output of the research institution as well as the academic and industrial relevance i.e. value-addedness of the graduate students.

The scientific and transferrable skills that students have developed in a PhD programme should be applicable in settings such as education, health services, business and government. Quality and quantity of research publications, invitations to scientific conferences, prizes and personal accolades, coursework assessment, transferrable skills acquired serve as excellent indicators of the quality of PhD students, which also directly reflects the robustness of the PhD programme.

On an institution-wide level, the quality of the PhD programme should be assessed by a number of key performance indicators (KPI), which includes the volume and impact factor of their academic publications, scientific profiles and reputation of the research personnel within the institution, the inherent ability to identify and recognize relevant research areas within and between academic institutions for the cross-pollination of complementary ideas to materialize useful collaborations, generations of patents, adherence to ethical standards and most importantly, the possession of a sizeable research endowment that provides the fuel for the academic engines.

A European-wide standardized set of assessment criteria should therefore be taken into consideration by the relevant authorities that oversee the quality of PhD education in biomedical and health sciences. Based on this centralized assessment system, ranking academic institutions may or may not be necessary according to a number of reasons that will be explored in this article.



L17

TO INVEST IN KNOWLEDGE BY HIGH QUALITY PHD PROGRAMS AND PUBLIC-PRIVATE-PARTNERSHIPS

Anita Aperia

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PhD is the highest academic degree and the training program requires a rigorous quality control. For an MD a PhD degree in life science will serve as an excellent preparation for a career as a clinical scientist in an academic hospital, and for both MDs and non-MDs as a basic scientist in a university or at an industrial research and developmental unit. Taking in account the increasing mobility of young MDs and scientists in Europe, we should strive for similar and high standards among different countries.

In this talk I will discuss the standards and the quality controls of PhD training at medical faculties from the University, the Supervisor and the Student perspective.

Much of my talk will be based on my experience of the standards for quality control in the Swedish medical faculties. The majority of PhD students that we train will not continue their career within the university and students, that do pursue an academic medical career, will need to learn more about the developmental work within the field of life science that takes place outside the universities. For this reason I see a need for more public private partnerships with regard to most aspects of the PhD training, including not only common projects and career coaching, but also in setting the standards for a PhD training in life science that would make Europe more competitive.

L18

QUALITY INDICATORS FOR PhD STUDIES

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Quality of PhD studies can be evaluated by considering quality of sub-components which together contribute to the value of studies its. These are:

- Fitness for purpose: mission and its reflection in the programme
- Quality of students: transparent and competitive recruitment procedure, diversity of candidates
- Quality of the programme: defined learning outcomes, ratio of the research to instructional components, type and quality of courses
- Organization of the programme: Courses in research methods and methodology, quality of instruction, involvement of stakeholders, development of transferrable skills,
- Quality of the environment: research experience of teachers, facilities, resources, working conditions
- Quality of supervision: scientific experience of supervisors, their supervising skills, participation of supervisors from abroad, monitoring of student's progress, career development
- Internationalization: international cooperation, mobility of students and teachers, courses in foreign languages
- Quality of doctoral thesis: relevance of the topic, use of acknowledged scientific methods, publishable results
- Quality of graduates: fair judgment of the doctoral theses, assessment of transferable skills
- Internal quality assurance system in place: feedback collection from students, teachers, employers, follow up of graduates, regular self-evaluation, benchmarking



L19

PERSPECTIVES OF TURKISH ACADEMY OF SCIENCES ON DOCTORATE PROGRAMS

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Turkish academy of Sciences (TUBA) has a mission to create a scientific platform as a basis for communication and debate on public issues. TUBA was set up with the aim of promoting research in Turkey in all areas of science and encouraging young people towards scholarly pursuits, helping to improve the social status of scientists and researchers. TUBA has following Scholarships, Financial Support and Award Programmes for young scientists. Young Scientists Award Programme (TUBA-GEBİP) which is a unique programme to reward successful young scientists. TUBA-GEBİP provides financial support for research studies for 3 years and tries to develop a new generation of competent researchers from all disciplines. TUBA also has a Fellowship Programme for Integrated Doctoral Studies in Turkey and / or Abroad in Social Sciences and Humanities (TUBA-BDBP). TUBA also has post-doctoral Research Fellowship Programmes as well as Science and Encouragement Awards. The number of graduate programmes and PhD researchers is still under-represented in Turkey. Unfortunately, fundamental research and applied research at the academic institutions need more changes, support and financial encouragement.

TUBA aims to develop policies and projects to reverse brain drain. Brain drain leads to emigration of researchers to other countries and re-allocation of researchers to non-research and technology related activities due to higher income. TUBA tries to develop new and attractive training initiatives for better PhD programme training programmes. TUBA has been working on setting up standards for Ph.D. Programs and has the following recommendations :

- a. Research and Development funds must be increased rapidly and efficiently,
- b. Academic institutions must have more positions available for Ph.D. students,
- c. Doctorate programmes must be encouraged to accept more graduate students,
- d. Student advisers /mentors should allocate certain portion of their research budgets to doctorate students,
- e. In selected or specified fields, systems must be developed to support Ph.D. training abroad preferably determined by the Foresight Projects,
- f. Certain measures must be taken and decisions to be made to strengthen the “Integrated Doctorate Programs” with foreign institutions establishing effective collaborations,
- g. Decisions must be made to encourage proper balance between fundamental, experimental and applied research with comprehensive concept of cooperation in certain fields of science, and
- h. Academic institutions must take urgent measures and develop funds for a better infrastructure in research and development for the young researchers including graduate students and post-docs.



SC9

STANDARDS ON POST-GRADUATE BIOCHEMICAL EDUCATION IN GREECE

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Post-graduate education in Greece is implemented on two levels: (a) Post-graduate diploma equivalent to a Master's degree and (b) PhD degree. Post-graduate diplomas in Biochemical studies have duration of two years including one year of theoretical and practical courses and a minimum of one year of research assignment. The post-graduate research is supervised by a faculty member of any rank. Successful award of the post-graduate diploma is accomplished after public presentation of the results of the dissertation and examination by a three-member academic committee. For enrolment in a PhD program in most cases a Post-graduate diploma is required. A PhD dissertation must have duration of at least three years and requires original research. Some departments have an additional prerequisite of at least one publication in a peer-reviewed scientific journal. One supervisor and two advisors have the supervision of the research at the PhD level. Once the experimental part is completed the PhD candidate presents the results to the advisory committee and

obtains permission to write the PhD thesis. After completion the thesis is submitted to the Department and a seven member examining academic committee is appointed including the supervisor and the two advisors. The PhD degree is awarded after public presentation and examination by the seven examiners, three of which must be full Professors. The Greek higher education system does not follow the Bologna process. Undergraduate studies have a duration of four (School of Sciences), or five (Schools of technologies and Applications), or six years (Schools of Medicine). Therefore, integrated studies up to the PhD level may have minimum duration of 9, 10 or 11 years, respectively. In rare cases and in particular in Schools of Medicine a post-graduate diploma may not be a prerequisite for enrolment in a PhD program. Post-graduate biochemical studies are offered by all major Universities in Greece, such as: the National and Kapodistrian University of Athens, the Aristotelean University of Thessaloniki, the University of Patras, the University of Ioannina, the University of Krete, the Demokretian University of Thrace, the University of Thessaly and the Agricultural University of Athens.

**SC10**

#### **SSPH+ PhD PROGRAM IN PUBLIC HEALTH – TEACHING, TRAINING, NETWORKING**

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The SSPH+ PhD Program Public Health is a training- and networking program of the Swiss School of Public Health (SSPH+). The School is a joint initiative of seven Swiss Universities (Basel, Bern, Geneva, Lausanne, Lugano, Zurich) and aims to provide students in the field of Public Health the best possible preparation for their role as public health scientists and experts. Since the start in 2008 171 students registered with in program, while 65 are still active.

The PhD program organizes national doctoral courses comprising basic skills in public health research, advanced methods courses and thematic workshops with networking opportunities. Courses are taught by national and international experts and aim to provide high level education for PhD students. To ensure also individual education registered PhD Students are financially supported and can apply for funding of external national and international courses and workshops. Students also profit from a structured learning experience by using a self assessment form that guides both students and supervisors with regard to the skills and competences that need development and facilitates regular assessment of progress.

To enrol with the program student needs to be accepted as a PhD student/candidate by a qualified supervisor of a PhD Program at one of the Swiss Universities or ETH's. The PhD degrees are awarded by the different Swiss Universities and by the Federal Institute of Technology (ETH) according to their regulations. SSPH+ does not award a PhD degree but coordinates training and networking.

For more information please visit our homepage [www.ispm-unibas.ch/ssphplus](http://www.ispm-unibas.ch/ssphplus).

**SC11**

#### **QUALITY ASSURANCE IN DOCTORAL EDUCATION: EXPERIENCES FROM KAROLINSKA INSTITUTET**

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Doctoral education at the medical university Karolinska Institutet has a long tradition of excellence. One important factor for this is the favorable research environment with many world-leading scientists. Other positive factors are a close connection to university hospitals with good conditions for clinical research, proximity to other universities and the pharmaceutical industry with their own research facilities. However, both supervisors and doctoral students are nowadays confronted with new challenges due to global changes and new demands. International competition is increasing, researchers are working in extensive networks, time constraints are more obvious, and employability after obtaining a PhD degree has come into focus. The international Bologna Accords place high demands on learning outcomes, alignment of the degrees between countries and an increased possibility for mobility of students. The need for efficient quality assurance has therefore become obvious.

Karolinska Institutet works to ensure quality assurance in doctoral education in different ways. One is defining overall university outcome aims for doctoral education with corresponding quality indicators and outcome measures. Another is to systematically analyze and adjust the whole doctoral education system from the recruitment and selection of doctoral students, to methods of supervision, doctoral courses and programs, the implementation of learning outcomes in courses and individual study plans, and the final thesis defense. A third measure is by regular follow-up with surveys among students, supervisors and alumni (e.g. exit polls). Finally, faculty funding for new doctoral students enables to introduce quality improvements. Recent results will be presented and discussed.



SC12

Experience with accreditation of the PhD program at the Medical University of Graz

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Accreditation is a formal and transparent process providing internationally compatible standards to examine whether institutions and/or programmes offered at university level comply with minimum quality requirements. Therefore, the Medical University of Graz decided that simultaneously with the establishment the new Bologna-conform doctoral program, the program has to go through the accreditation process, even it is not required yet by national regulations and law. Standards are important in the creation of transparency, in defining points of intersection and to ascertain compliance with legal regulations.

The accreditation process is accompanied by ACQUIN, a member of e.g. EUA. The process is based on self-evaluation report providing a detailed answer and description about following points:

- Have valid degree programme objectives been formulated?
- Is the degree programme as a whole, together with the individual degree course modules a suitable means of reaching the objectives of the degree programme?
- Is a consistent implementation of the degree programme concept assured?
- Are target definitions, the course concept that is built upon them, and the degree to which it is implemented checked?
- Does iteration take place in order to eliminate errors and assure optimisation at all process stages?

The self-evaluation report is written on the basis of these guidelines and intends to clarify the quality profile of the degree programme and the strengths and weaknesses of the individual elements. (Source of this abstract is: <http://www.acquin.org/en/>)

SC13

PITFALLS OF ERASMUS EXCHANGE PROGRAMS FOR GRADUATE STUDENTS IN HEALTH SCIENCES

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The number of health and bioscience graduate students joining mobility programs is increasing in Turkey. The students have invulnerable experiences in the receiving institutions, but also face some troubles. This study focuses on revealing the experienced troubles. To this end, ex-Erasmus students were asked a set of questions. The results have shown that (1) the sending institutions are not well informed about the "Erasmus Training Programs"; (2) the students may not be properly selected particularly in language skills to follow courses at the receiving institutions; (3) the monthly student Erasmus-income is lower than what the German Embassy requires from student applicants for visa; (4) the students may not receive their first stipend in time, which may be 80% of the monthly bursary; and the same may apply to the remaining %20 in their return; (5) the student stipends may fail to cover mandatory expenditures of the students, which consists of accommodation and deposit expenses, notary-public fee for visa application papers, transportation expenses, registration fee, school contribution fee, and Erasmus student language course fee; (6) the receiving institutions may fail to help exchange students for their accommodation issues, for their transportation from the airport, and to guide how to deal with the first-minute paperwork; (7) the students are not informed properly by any parties about the social and academic culture of the receiving country, which may cause misperception in student judgement. In conclusion, receiving and sending graduate schools need to improve their cooperation before putting a mobility program into action.



P1

### ACHIEVEMENT OF DOCTORAL STUDY: TUNISIAN PhD STUDENTS' VIEW

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The decision to attend graduate school to get a Ph.D. is an important one, and not one to be made lightly or without consideration. In Tunisia, typical doctoral programs take four to seven years to complete and in most science fields, students then spend two to four years in postdoctoral training before beginning their professional career. Committing to a Ph.D. means sacrifices as doctoral students are generally not well paid and doctoral training is a "job" that requires perseverance and very hard work. Survey on Tunisian doctoral education and career preparation is a national survey of doctoral students intended to provide a snapshot of their experiences and goals. About 200 students completed the 15-questions survey. These students were from 5 selected universities and represented Biomedicine and Health Sciences sectors. In this report, we have tried to explain the reasons making doctoral study as a real abnegation. Hence, there are three major causes (1) doctoral study may increase personal debt: relative to peers, it will forego many years of income (2) limitation in the opportunity to get international research training course that approve and finalise dissertations and (3) Once they obtain their diploma it is too difficult for Ph.D. graduates to get an appropriate work in universities, research or public health establishment. Nevertheless, doctoral work is still usually an exciting and positive experience.

P2

### QUALITY ASSURANCE FOR PUBLIC HEALTH PhD EDUCATION IN KAZAKHSTAN

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Structure of National PhD educational program contains two main components – education and research. Each PhD student has two mentors – national and foreign that gives possibility to conduct research in two countries, compare best practices and use modern technologies in their own research. Such structure helps to build sustainable collaboration between educational institutions in the world. There are certain requirements for the foreign mentor who should present foreign educational or educational-research institution that has modern equipment, access to international informational nets, reach library, computer technologies, and electronic database. PhD student during field study in foreign institution has possibility to use all available capacity in getting new knowledge and practice in research, get experience in writing publications in peer review journals, introduce with system of education abroad and make presentations at international conferences and meetings. PhD program in public health is going during three years in Kazakhstan and first year at Kazakhstan School of Public Health. There are ten PhD students of the first year education. All of them are on the education level – getting training courses on epidemiological research conducting, management and evaluation. At the same time students work on their own research plan, choose of national and foreign mentors and get approval for their research protocols from Local Institutional Review Board. Although time period is not so long educators of Kazakhstan School of Public Health think about development of quality assurance indicators that could give comprehensive approach to PhD program development. Such indicators will include number of publications in peer review journals, grants written and gotten during education period, GRE rate for students and others. All quality indicators will divided in to three directions: evaluation of research activity, student and research results support, and variety of academic environment for PhD student education.

P3

### NEW FRONTIERS IN THE PHD EDUCATION IN BIOMEDICINE AND HEALTH SCIENCES IN LITHUANIA

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There are defended over 350 doctoral theses every year in Lithuania. According to the statistics of Research Council of Lithuania, in 2010, 146 PhD students in the field of Biomedicine and Health Sciences were admitted to the 10 universities and institutes in the Lithuania. Totally, approximately 400 doctoral theses were successfully defended and the candidates have been awarded by the doctoral degree in the country over 2002-2010 in the Medicine (79 %) and in the Public Health (21%).





The main Fields, Aries and Branches in Biomedicine and Health Sciences for PhD education were stated by the Lithuanian Government in 1992, and later revised in 1997, and in 2007. Some changes were determined again in 2010.

Lithuanian Government defined the Regulations on PhD training in 2001. For today, the Regulations on PhD studies are updated, modified and changed into the new ones. Now PhD education is determined using new PhD Regulations (The Decision of Lithuanian Government No 561, issued on May 12th, 2010, on new PhD Regulations). The new Regulations open possibilities to realize joint PhD programmes. It gives opportunity for updating PhD education system, for its renovation, modernization and harmonization. The new PhD Education system in the country is oriented toward standards for PhD Education in Biomedicine and Health Sciences in Europe, in regard to the Bologna process and Berlin addendum, for achieving Europe's research goals, and for improvement of the quality of PhD theses. The new Regulations for PhD education have innovations: not only single, but also few universities are eligible to carry out the PhD studies; PhD studies are coordinated by the Doctoral Committee with highest level researchers as the members; a Committee member could be a scientist from the foreign University; at least one member of the doctoral dissertation Defence Board should be from the foreign country; the language of the doctoral thesis can be not only Lithuanian, but also other (foreign). The new Regulations support the international professionals' visits for lecturing in the Lithuania's universities for PhD students; support the visits of PhD students to the foreign Universities and other research institutions; support PhD students' participation with presentation in the international events (conferences, congresses, symposiums, workshops, courses, meetings, etc.). There is overseen financial support for PhD students through EU funds within special programmes, Erasmus exchange program, the research and the project grants, and the institutional support funds. The Research Council of Lithuania supports foreign scientists' visits for consultations, research, lecturing, and attendance of defence of the thesis using national funds and EU funds.

Under the auspices of ORPHEUS organization, an International ORPHEUS workshop: How to Achieve Internationalization and to joint PhD Programmes in Biomedicine and Health Sciences was organized in 2010 by the Klaipeda University, Faculty of Health Sciences, (Lithuania). The importance of internationalization, collaboration and cooperation was introduced. The questions of cooperation at international and national levels were discussed and possible joint PhD programmes were overseen.

Following up the new PhD Regulations, an agreement for joint/dual PhD programme in Health Sciences/Public Health was signed and the new joint PhD programme (between the Faculty of Health Sciences, Klaipeda University and the Faculty of Medicine, Vilnius University) was delivered. The partner institutions (Vilnius University and Klaipeda University) agreed on conditions and deliverables of this new programme in Biomedicine, Public Health (10 B).

Klaipeda University, Faculty of Health Sciences has long-standing experience within joint (collaborative) PhD studies with the Universities in Finland (University of Tampere, University of Turku, and University of Kuopio). Vilnius University, Faculty of Medicine has huge international partnership with the universities in Austria, Czech Republic, Denmark, France, Germany, Italy, Japan, Norway, Poland, Russia, Spain, Sweden, Taiwan, Netherlands, UK, USA, and the practical experience in the work at international programmes and projects.

This joint/dual programme realised by the Faculty of Medicine, Vilnius University and the Faculty of Health Sciences, Klaipeda University ensures enhanced and higher quality level of PhD studies. Under implementation of the new PhD Regulations, it is possible to achieve internationalization and harmonization of PhD education.

**P4** **LEGISLATION CHANGES AIMING TOWARDS QUALITY IMPROVEMENT OF THE PhD STUDIES IN THE REPUBLIC OF MACEDONIA**

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Reforms in the third cycle of studies started in 2009, based on the new Law for Higher Education from 2008. A School for PhD studies was established at a university level. The duration of PhD studies in medicine and health sciences is three years, and 180 ECTS.

The admission criteria for candidates include: graduation on the II cycle of medical studies according to the ECTS, or acquired Master before implementing ECTS or graduation on a medical school or other faculty in the field of biomedicine and health sciences, grade point average of at least 8.0 (out of maximum 10) in undergraduate studies is required, knowledge of one of the foreign languages (certificate by the Faculty of Philology in Skopje, or international certificate or diploma).



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**NATIONAL REPORTS**



The mentorship criteria included a PhD degree, academic position of a professor or associate professor, scientific project leader or associate at a scientific project, at least 2 scientific papers in the last 5 years published in internationally peer reviewed journals or national journals.

In the meantime, prior to accreditation of the PhD studies, the Government made changes and supplement to the Law for Higher Education, particularly affecting the issue of the third cycle of studies, aiming towards quality improvement. The mentorship criteria underwent serious changes including: a mentor of a PhD candidate should have published at least 6 scientific papers in international scientific journals, and two out of six in papers with impact factor in the last five years; the mentor cannot be a member of the committee for the final evaluation and defense of the PhD thesis. The member of the committee cannot be in blood relation to any degree or in legal relation to fourth degree with the candidate, or to any other member of the committee. The new legislation includes also an obligatory international mobility for PhD students of at least one week.

**P5** **STRUCTURE OF BIOMEDICAL RESEARCH EDUCATION SHAPING QUALITY OF BIOMEDICAL RESEARCH IN TURKEY**

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The number of health science articles has exponentially increased in Turkey recently, but the citation number per article has dropped in the same period. Some drawbacks were also reported within this period about the structure of biomedical research education, and a strong correlation has been suggested between the quality of science and the structure of education. In this study, we have documented the structural components of biomedical research infrastructure in Turkey, and searched if there existed any correlation between the two. The results have shown that the state is the regulatory body for admission, education and graduation at graduate school level. University infrastructures are not supported by "excellence projects" and no ombudsman institution is established in schools in general. Cooperational activities among schools, industry, governmental institutions, and laboratories are weak. Faculties without PhD education or research grants may run PhD programs and studies, and may not be informed about or be aware of doctoral degree standards. Generally, no research bases are set in clinics. MD-PhD programs are very rare. Graduate students are rarely supported for stipends or offered a position in medical schools. Therefore, bright candidates do not apply for PhD programs. Research positions in the job market are very limited. These results suggest that components of biomedical research infrastructure have not been properly worked on to generate high quality scientific products. In conclusion, establishment of a body composed of national biomedical scientists might help to generate professional solutions to improve them.



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**ABSTRACT BOOK**  
**PhD SCHOOL - PROGRAMMES**



**P6** **CHILD HEALTH PROGRAM IN POSTGRADUATE PUBLIC HEALTH EDUCATION**

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The objective of this study is to introduce child health course which is conducted in Public Health doctoral programs in Turkey and to compare the universities which offers this program with respect to eligibility, learning objects, curriculum, teaching methods and student evaluation.

The postgraduate Public Health programs and Child Health courses offered in 66 medicine faculties out of 102 state and 52 private universities in Turkey were assessed. In Turkey there are 28 medicine faculties, which offer Public Health master program. 18 medicine faculties offer postgraduate Public Health program.

The objective of postgraduate Public Health program is to provide the students with the notion of discussing and proposing new solutions about present or possible public health problems worldwide and within Turkey. Since 1992 there has been 29 students graduated from EUFMDPH postgraduate program and 4 of them made their thesis on child health. Child Health course is one of 16 courses offered in EUFMDPH postgraduate program.



In PH master programs Child Health is given in 2 one-semester courses entitled “Mother and Child Health” whereas in postgraduate PH programs the courses is given under the same name, as a one-semester course. The curricula are similar and major issues that affect the health and well being of infants, children and adolescents in national and international settings are covered in the courses. A variety of learning techniques are used including lectures, class discussion, group projects, guest discussants and field observation. Students are required to give a formal oral presentation and must also pass a comprehensive examination.

In all of these programs offered in Turkey, it is determined that a standard is ensured countrywide in the aspects of learning objects, curricula, teaching methods and student evaluation.

**P7**

**SSPH+ PHD PROGRAM IN PUBLIC HEALTH – TEACHING, TRAINING, NETWORKING**

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The SSPH+ PhD Program Public Health is a training- and networking program of the Swiss School of Public Health (SSPH+). The School is a joint initiative of seven Swiss Universities (Basel, Bern, Geneva, Lausanne, Lugano, Zurich) and aims to provide students in the field of Public Health the best possible preparation for their role as public health scientists and experts. Since the start in 2008 171 students registered with in program, while 65 are still active.

The PhD program organizes national doctoral courses comprising basic skills in public health research, advanced methods courses and thematic workshops with networking opportunities. Courses are taught by national and international experts and aim to provide high level education for PhD students. To ensure also individual education registered PhD Students are financially supported and can apply for funding of external national and international courses and workshops. Students also profit from a structured learning experience by using a self assessment form that guides both students and supervisors with regard to the skills and competences that need development and facilitates regular assessment of progress.

To enrol with the program student needs to be accepted as a PhD student/candidate by a qualified supervisor of a PhD Program at one of the Swiss Universities or ETH's. The PhD degrees are awarded by the different Swiss Universities and by the Federal Institute of Technology (ETH) according to their regulations. SSPH+ does not award a PhD degree but coordinates training and networking.

For more information please visit our homepage [www.ispm-unibas.ch/ssphplus](http://www.ispm-unibas.ch/ssphplus).

**P8**

**PhD PROGRAMME IN PHARMACEUTICAL-BIOCHEMICAL SCIENCES OF THE UNIVERSITY OF ZAGREB FACULTY OF PHARMACY AND BIOCHEMISTRY**

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Doctoral studies in Pharmaceutical-Biochemical Sciences of the University of Zagreb Faculty of Pharmacy and Biochemistry are organized in two modules: Pharmaceutical and Medical-Biochemical Sciences. The program is intended for pharmacists, medical biochemists and other professionals in the field of biomedicine and Health and the field of Natural Sciences.

The purpose of doctoral studies is to train students for future leaders and experts in specific research activities in science and education (planning and selection of projects according to technological and economic criteria, laboratory, semi-industrial and industrial production of medicines, drug design, defining pharmaceutical quality control and control of laboratory work quality, monitoring drug destiny in the organism, and drug interactions, finding novel diagnostic and prognostic indicators, new therapeutic approaches etc.).

The doctoral studies program is interdisciplinary; it is integrated through interlinking knowledge from the fields of fundamental natural sciences, basic and applied clinical sciences, computer and communication sciences.

The studies comprise 1. organised instruction (basic, modular, methodological and elective courses) and 2. active engagement in scientific-research work, and end by taking an exam, favourable evaluation of research activities, passing grade and defence of the doctoral thesis.



The credit system applied in doctoral studies complies with the ECTS. Participation of organized instruction in the study course is at least 20% while about 80% of the total workload refers to research activities of students.

**P9 EFFECTIVENESS OF PhD PROGRAMMES IN BIOMEDICINE AND HEALTH SCIENCES IN HACETTEPE UNIVERSITY**

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Hacettepe University Institute of Health Sciences was established in 1967 and is responsible for the graduate programs in allied health sciences. There are more than 1000 faculty and 850 students in 133 masters and doctorate programs. The aim of this study is to assess the effectiveness of PhD programs by taking into account the duration of the study and publication performance of graduates during the last decade.

A descriptive retrospective study was designed. A literature search was performed using ISI Web of Science™ and Institute databases. Total per-thesis publication number for each graduate was computed as the total number of articles published in journals indexed in SCI-Expanded database, starting after the first year of PhD education and ending after 2 years following the graduation. Publications other than articles were not included in the count. This number is used as an indicator of exposure to research environment of a PhD student and a measure of his/her productivity.

The aggregate mean duration of a PhD study was found to be 5.4±1 years. A total number of 433 students (108 male, 325 female) have been graduated between 2000 and 2010 from Dentistry (138), Pharmacy (48), Medicine (73), Physical Therapy and Rehabilitation (59), Nursing (78) and Nutrition and Dietetics (37) programs. PhD candidates from pharmaceutical and basic medical sciences had at least one article published (median) during the period of PhD study. These programs are considered research PhD's. The data suggest that the thesis committees were not strict to impose publication requirements, since many students published their theses beyond 2 years after graduation. Most graduates tend to publish their thesis works to obtain positions in the universities. In other disciplines, e.g., nursing and dentistry, in which clinical work is dominant, publication rate is lower. These are considered similar to so-called professional PhD's. Hacettepe University PhD programs meet largely the criteria proposed by Orpheus. However, some programs may be considered professional PhD's.

**P10 EVALUATION OF SIGNAL TRANSDUCTION COURSE IN THE CONTEXT OF Ph.D. EDUCATION PROGRAMME AT THE MEDICAL BIOLOGY DEPARTMENT**

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**Objectives:** Signal transduction course aims to provide fundamental knowledge about the concepts of cell to cell communication, and familiarize the students with the presentation and discussion of original papers. The aim of this study was to evaluate of the course with students feedback and use the results for improving the program.

**Materials and Methods:** Seven students attending the course in the period between the years 2003-2011 participated to this study. Data were collected through a form, consisting of open-ended questions and interview techniques. Qualitative data analysis phase was followed and gathered themes were compared and then embedded into the Kirkpatrick's program evaluation steps.

**Results:** Four themes and 10 categories, gathered from data, were socio-demographic features, reaction, learning, and behaviour. Positive and negative aspects and suggestions were defined in each category. Students were generally satisfied with the training program. Most of the proposals for program development were related to method, assessment and material categories. Use of animations/models, increasing numbers of presentations/repetitions, allocating more time for student discussion platforms and inclusion of homework/research articles were requested by students. All of the participants expressed the fact that they had learned basic concepts. They said to benefit from as basic knowledge acquisition, development of scientific approach, and schematization. Graduated students reported that they had used gathered knowledge in their professional life. Areas of knowledge application reportedly appear to be genetics studies, dialectical thinking power, and treatment of emergency diseases, reading of publications, visualization techniques and problem solving.

**Conclusion:** The students expressed a satisfying response about the course in general and requested that this course should be compulsory instead of elective. In view of the students feedbacks it is thought that diversifying the teaching methods will improve the program.



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MOLECULAR MEDICINE DOCTORATE PROGRAMME AT ISTANBUL UNIVERSITY

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The first Molecular Medicine Department in Turkey located in Institute of Experimental Medicine at İstanbul University is an interdisciplinary scientific branch that analyzes the biochemistry and molecular biology of cells and organisms, particularly from a medical point of view. The main aim of the Department of Molecular Medicine is to prepare students for studies in high technology, which is the real necessity of our country. Post graduate and Doctoral programs are offered in the Department of Molecular Medicine under the aegis of the Institute of Health Sciences. Graduate students carry out thesis research under the supervision of staff members. Generally, the students have completed their major course work, and are engaged in full time research. The results of all research published as an article in international indexed journals. To date 42 graduates and 46 master's and doctorate students have studied on Molecular Medicine Training Program and supported by training grants to the University of İstanbul or by investigation research funds from the state. The molecular medicine doctoral training program course consists of a series of lectures - 10 necessary and 7 elective courses including Biochemistry, Molecular Pharmacology, Cancer Biology and Genetics - and discussions intended to expand the training of junior scientists at the Department of Molecular Medicine. The courses are necessary for understanding of biochemical reactions and metabolic pathways formed in cell and organism, identification of the necessary background, laboratory conditions and experimental researches for applying the clinical tests, identification of methods used in the clinical diagnosis and surveillance of diseases, identification of molecular mechanism playing role in the etiopathogenesis of diseases, identification of pharmacogenetic terms and molecular approaches in pharmacology, identification of cell building blocks and biochemical and molecular mechanisms taking place in cell-environment interaction, understanding and molecular definition of cellular functions which are damaged in various diseases, presentation of cell culture laboratory and equipments and identification of sterilisation, cell freezing, preserving and culture passage techniques, understanding of the system biology and endocrine system, definition of hormonal changes occurring after the molecular mechanism disorders, definition of molecular genetic techniques used in diagnosis of various diseases and its applications, identification and analysis of signal transduction mechanisms, cell cycle, apoptosis and factors associated with angiogenesis. The students at molecular medicine department have also journal club, seminar and discussion time for proceeding new research areas, new techniques, and new concepts in molecular medical researches.

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EVALUATING A COURSE WITHIN THE FRAMEWORK OF PhD EDUCATION IN HEALTH SCIENCES

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The aim of this study is to emphasize the importance of evaluating programme development through a course constituting an important part of a PhD programme. Therefore, the opinions of students both attending and graduated from the programme, together with those of the lecturer directing the programme were gathered.

The programme of this course was evaluated using qualitative and quantitative data-gathering procedures in a mixed research design approach. Eisner's educational criticism model was preferred to evaluate the programme. The study involved three approaches: defining, drawing conclusions and evaluation. The qualitative dimension of this research enabled us to gather detailed data.

The research group comprised the students both attending and graduated from the programme, together with the course lecturer. Data was gathered on the basis of concurrent nested strategy by means of semi-structured interviews and the questionnaires answered. With the help of descriptive analysis of qualitative findings, quantitative findings regarding some sub-problems of the study were explained.

The evaluation was carried out in the light of the opinions of the lecturer and the students, under the headings of goals of the programme, content of the programme, the learning and teaching process, evaluation of student success and the efficiency of the programme.

Within the context of the findings, we suggest a revision of the goals and the integration of this course with the other courses, together with a strengthening of interaction with those students who attend the course whilst having close links to various workplace sites.

This evaluation aiming at the elements of the programme not only shows the progress of the course within time but also gives important clues about the planning of the course in the future.



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**MEDICAL STUDENT RESEARCH PROGRAMME**

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The Medical Student Research Programme (MSRP) is a national education and grant scheme for a group of students in medicine (up to 10 %) who wish to carry out research in parallel with their studies. The purpose of the programme is to increase recruitment of people with a standard medical degree to medical research. At the University of Bergen (UiB), since 2010, the programme is also offered to students in dentistry.

The students at the MSRP follow the ordinary medicine and dentistry study. In addition to this, they achieve an organized research education and get to perform their own research activity that might be the beginning of a PhD. The Faculty of Medicine and Dentistry grants 5 scholarships each year for students who wish to finish their PhD immediately after their studies.

The students can be affiliated with the MSRP from the second year of their studies. For students at the MSRP, the regulated time of study is prolonged by one year. Students at the MSRP perform one year of fulltime research training, and 0.2 years of part-time research training in parallel with their medical and dental studies, which sums up to 2 years of fulltime research training during their studies.

The MSRP students have the same training component as the PhD candidates, and do not have to repeat this if they choose to complete a PhD later.

A thorough evaluation of the programme was done in 2007. The evaluation found that the MSRP has led to an increase in the recruitment of graduated physicians to medical research in Norway.

Completed MSRP will give a total of 120 ECTS, in addition to the credits in the professional studies in medicine or dentistry.

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**THE NORWEGIAN PHD TRAINING PROGRAMMES IN MEDICINE AND HEALTH RELATED SCIENCES**

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The medical and health related doctoral programmes in Norway are organised research training programmes for early stage researchers. The programmes follow the Salzburg principles of implementing the doctoral level as the third cycle of higher education within the Bologna process. A PhD programme lasts three years and consists of a training component and an independent research work (thesis). A national committee is working towards harmonization of the doctoral training in medicine and health related sciences in Norwegian universities.

The training component consists of 30 ECTS, or six months of work, and includes the philosophy of science, ethics, scientific dissemination and research courses. The thesis is an independent piece of academic research which meets international standards in the discipline and contributes to the development of new knowledge in the field. The thesis normally consists of 3-4 articles, but can also be a monograph, both with a synopsis. The thesis is evaluated by a committee consisting of three members – two external opponents and one internal coordinator. If the thesis is approved, the candidate defends the research findings publicly by discussing the findings with the opponents. In addition, the candidate presents a 45 minute public trial lecture on a prescribed topic, followed by questions. Both the trial lecture and the public defence must be approved by the evaluation committee before the degree of PhD can be granted.

The number of doctoral degrees in medicine and health related sciences has increased steadily between 2000 and 2010 (135 in 2000 and 386 in 2010), currently making up 33 % of doctoral degrees in Norway. 58 % of the doctoral degrees in medical and health related sciences in 2010 were awarded to women.

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**PhD AND MSc EDUCATION PROGRAMMES IN MARMARA UNIVERSITY DEPARTMENT OF HEALTH SCIENCES**

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Marmara University with more than 3000 distinguished faculty members and a student body reaching 60.000, located in several different campuses scattered throughout the Istanbul Turkey for 124 years. Together with the Faculties of



Engineering, Medicine and Dentistry Marmara University also comprises the Faculty of Economics and Administrative Sciences which provides education in four different languages: Turkish, English, French and German.

PhD and MSc education programmes in Marmara University Department of Health Sciences was founded in 1982 to coordinate Master of Science (MSc) and Doctor of Philosophy Degrees (PhD) in post-graduate studies and secondary education both with or without thesis are available at the corresponding departments of Dentistry, Pharmacy, Medical Faculties (Anatomy, Biochemistry, Histology and Embryology, Microbiology and Clinical Microbiology, Molecular Biology and Genetics, Nuclear Medicine, Occupational Health, Parasitology, Pharmacology, Physiology, Biophysics, Public Health, Pediatric Surgery, Medical Education), Nursing, and Physical Sciences and Health Corporations Management.

PhD programme starts after MSc program. PhD program takes between 4-6 years, after the six years the students are awarded a PhD degree in Biochemistry. During this program students are obliged to complete 21 credit and 7 courses and they should present their thesis.

**P16 POSTGRADUATE EDUCATION PROGRAMMES IN MARMARA UNIVERSITY HEALTH SCIENCES DEPARTMENT OF BIOCHEMISTRY**

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Marmara University Institute of Health Sciences was established in July 20, 1982. The Institute of Health Sciences support post-graduate studies with 53 departments and associate 125 programs according to the needs of modern science and technology. Master of Science (MSc) and Doctor of Philosophy Degrees (PhD) in post-graduate studies and secondary education with or without thesis are available at the corresponding departments of Dentistry, Pharmacy, Medical Faculties, Nursing, and Physical Sciences and Health Corporations Management. Postgraduate education program for Biochemistry is included both at Faculty of Pharmacy and Faculty of Medicine in Institute of Health Science. The purpose of these programmes is to focus on biochemical events in living cells at molecular level, structure and metabolism of macromolecules and regulation of hormonal and enzymatic. These departments have been studying on apoptotic factor measuring, receptor purification, ligand-receptor binding, protein isolation, gene polymorphisms in several diseases, platelet-lipoproteins interactions, oxidative stress and antioxidant activity by cell culture methods, immunohistochemical assays, molecular biology techniques. Areas of research include: cardiovascular diseases particularly atherosclerosis and its progression, dislipidemi, diabetes, cancer and several metabolic disorders which are the primary cause of mortality. Every post-graduate thesis has a major importance for clinical medicine and pharmaceutical industry.

**P17 PRESENTATION OF PhD SCHOOL OF ONCOLOGY AND SURGICAL ONCOLOGY**

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The Doctoral Program is organized by the Department of Oncology and Surgical Sciences. The Department hosts basic and clinical research and is integrated with a clinical unit of Onco-Haematology and a Cancer Epidemiology Center.

The program fosters a multidisciplinary approach, with particular emphasis on overcoming barriers between basic and applied research.

Principal research lines:

- Molecular and histopathology of tumors
- Viral oncology
- Tumor immunology
- Genetic predisposition to cancer
- Onco-hematology
- Tumor surgery and loco-regional treatments

**Training objectives:** -Appropriate knowledge of molecular and cellular mechanisms underlying neoplastic transformation; -Acquisition of innovative technology relevant to cancer research;. -Ability to design and develop advanced research independently.

**Didactic and Laboratory training:** The doctoral program consists of advanced theoretical courses (*core courses*), *seminars* and *research activity*. The program lasts three years.



**Other training activities:** -Attendance at national and international meetings is encouraged to enable students to expand their horizons and acquire the skills necessary for collaboration with other research groups. -Training periods in foreign laboratories within the framework of collaboration with international scientific institutions are envisaged.

**Evaluation of training progress:** -Participation in departmental research seminars in which students present their thesis projects -Journal-club presentations -Periodic monitoring of research progress by the supervisor, and annual assessment and approval of the project by the Doctorate committee. -Written and oral presentation of the doctoral thesis to external experts and the Doctorate committee -Publications in international peer-reviewed journals.

**Evaluation of PhD School:** -Annual monitoring by the Evaluation Committee of the University of Padova of basic requirements, such as the number of teachers and supervisors, scientific publications, grant availability and national and international collaborations.

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### THE PhD MODEL OF DOKUZ EYLUL UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES

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*Dokuz Eylül University Graduate School of Health Sciences, İzmir*

The aim of Dokuz Eylül University Graduate School of Health Sciences is to educate competent, reliable contemporary research scientists, academicians, and health professionals having the capability of performing independent research with a high level of quality and having a strong sense of scientific integrity. Individuals receiving the PhD will have acquired the necessary skills, leading them to contribute to basic and applied science.

After acceptance of the PhD model of Dokuz Eylül University Graduate School of Health Sciences by the Turkish Higher Education Council, it appeared in the official journal on April 5, 2005 and became valid. In the beginning of the 2005-2006 academic year, PhD students were accepted according to this regulation. Requirement for an approved and funded research project from the potential supervisor, pre-agreement between the supervisor and the PhD candidate, as well as the prerequisite of publishing in a SCI-expanded covered journal before entering the thesis defence are the three main characteristics of the PhD model of Dokuz Eylül University Graduate School of Health Sciences. Professors, associate professors, and assistant professors (with at least three years of experience), having the proposed thesis project approved by the ethics committee, having solicited publications from previously supervised theses and having as the upper limit five postgraduate students are eligible for being a "supervisor candidate".

The PhD model in the Graduate School of Health Sciences of Dokuz Eylül University provides the suitable learning environments for scientific/analytical thinking, research training, and scientific communication for its post-graduate students.

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### INTERDISCIPLINARY PhD AND BEYOND: A SWOT ANALYSIS

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The aim of this SWOT analysis is to discuss the weaknesses and potentials of interdisciplinary research in the biomedical field at the interface of medicine and engineering sciences. Research carried out at this very fragile interface is actually contributing to bridging the concepts; theory and methods of different disciplines are merging to solve problems that a single discipline can not solve. The strength of a multidisciplinary PhD in biomedical sciences is the diversity in understanding the facts and gaining of a broader perspective; a successful engineer prevailing medical field could draw wider conclusions and actually offer solutions to the current health problems of the world: such as in the case of "tissue engineering" developed by chemical engineers that would eventually produce artificial tissues and organs to solve worldwide organ shortages. Its weakness is to be in the middle of disciplines and, therefore, sometimes being far from both ends. The opportunity of individuals holding multidisciplinary PhDs is to be compatible and work in a wide range of centers throughout the world on these hot topics of research and development, while the threat being the immaturity and unreadiness of the departments to be involved in such research activities. The pros and cons of interdisciplinary PhD study and especially beyond it; the experience on working in the faculty of medicine as an engineer with a PhD degree in biomedical sciences will also be discussed based on personal experience.





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**A GENERAL OVERVIEW TO THE SOCIAL LIVES, ECONOMICAL SITUATIONS AND EDUCATIONAL SYSTEMS OF THE DENTISTS WHO IS WORKING FOR A PHD IN ANKARA UNIVERSITY**

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**INTRODUCTION:** Dental faculties are preferred by students among the 4% bracket in the university entrance exam. As the profession itself is prestigious, the successful students' gain the right to learn the profession, the graduates of this faculty should be in the forefront; besides, the educational process being hard and expensive, the scarcity of participation- in proportion -to the social and cultural activities, lack of motivation for the scientific work and the status of doctoral students, also the problems of permanent staff issues have been discussed by both the students with bachelor's degree and postgraduate students' representatives for ages.

Basically, 3 problems adversely affect the doctoral students:

- 1) in many faculties, doctoral students have extra responsibilities; serving in the practical training of the students with bachelor's degree, treating patients referred to the faculty, as a full time student.
- 2) Approximately 70% of the doctoral students are working without payment. In the past, qualified students were used to be supported by The Scientific and Technological Research Council of Türkiye (TÜBİTAK) with the scholarship method, which is not available now.
- 3) In many universities, the students who try hard to be a scientist, due to the limited number of permanent staff, cannot reach their goals and professional desires. These people can only apply as a permanent staff at the peripheral universities.

**CONCLUSION:** Having troubles hinder the students' efforts to be useful to the society at the optimum level and cause a lot of phenomenon in their lives become deficient. In fact, these problems and the results they bring about lead to systematic chaoses that follow one another. This situation leads not only loss of time and overwork, but it also affects their social lives and scientific works and thus they pass their troubles onto their patients and the students they train. Furthermore as it is known that there is almost no chance for promoting in their career, it considerably undermines their ambition and self-sacrifice

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**KEYNOTES FOR PhD APPROACH in FOOD ENGINEERING TO HEALTH SCIENCES**

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**Keywords:** Food Engineering, PhD Education, Health Sciences

Food Engineering is a multidisciplinary area applying the principles of pure, applied and health sciences such as chemistry, microbiology, nutrition and medicine. The ability to relate a well-offered PhD education in food engineering to health sciences absolutely provides significant benefit for further research to meet demands of human health. Safe and nutritious food for human is the primary goal of food engineering who is basically concerned with the health aspects of food research area. As genetic coding of human is released successfully the health sciences consequently start getting more personalized by emerging new interdisciplinary fields like proteomics, metabolomics, nutrigenomics that are also studied by food engineering. It is foreseen in the near future that PhD Education in Food Engineering is also likely to focus on how to get personalized in this area by studying new advances in nutrition, nutritional physiology, metabolic studies, biogenetic engineering and immunotoxicology. In Turkey this PhD approach has not been in close to the health sciences as compared to those offered in USA and EC. As a result PhD Education of Food Engineering needs to: (1) be involved in the health related studies (2) have well-designed curriculum in accordance with Bologna Process (3) direct the thesis of PhD Students toward manufacturing personalized and nutritious food to meet the demands of health sciences and (5) motivate PhD students to become a part of the health related sciences by putting effort towards society's prosperity.



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SOME ASPECTS OF PHD STUDY IN KONYA SELCUK UNIVERSITY FACULTY OF DENTISTRY

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Turkey, in the last few decades, made an important improvement in the training of researchers through PhD education.

There are 45 active Graduate Schools of Health Sciences in Turkey. Some of the main fields regarding MSc and/or PhD degrees are: Medicine, Veterinary Medicine, Dental Medicine, Pharmacy, Nursing, Oncology, Sports Sciences, Physical Therapy and Rehabilitation.

Konya Selçuk University Faculty of Dentistry was founded in 1987, to coordinate graduate and PhD education programme in various fields related to dentistry. The main fields regarding PhD degrees are as follows: Prosthodontics, Periodontology, Endodontics, Pedodontics, Orthodontics, Oral and Maxillofacial Surgery, Restorative Dentistry, Oral Diagnosis. The aim of the faculty is to give both theoretical background and research education and training for obtaining PhD degrees, and also creating opportunities for the graduates in order to produce competent, reliable, and self-directed research scientists, academicians, and health professionals having a strong sense of scientific integrity.

According to the statistics of Konya Selçuk University Faculty of Dentistry, in the last ten years a total of 216 PhD students were enrolled in, of whom 119 were graduated and 97 is still being educated. There are total of 294 PhD lessons in faculty, of which 203 are theoretical and 91 are practical. The PhD training program has a general duration of four years, with formal courses to be finished in the first two years.

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BIOCHEMISTRY PhD PROGRAM AT THE HACETTEPE UNIVERSITY INSTITUTE OF HEALTH SCIENCES

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The PhD program is carried out by the professors of Biochemistry Departments from Faculty of Medicine and Faculty of Pharmacy. The purpose of post graduate doctoral study at the Department of Biochemistry is to bring up research-oriented academics who have acquired necessary skills in the field of biochemistry as well as molecular and cellular biology. The students experience several research methods such as basic protein chemistry, enzyme purification and kinetics, recombinant DNA technology and cell culture. We try to assure that every individual who has completed the PhD program in our department would be an open minded scientist with scientific integrity who is at the same time familiar with novel topics in biochemistry such as emerging biochemical methods and technologies related to industry, innovation and product development. Beginning with the coursework, PhD students are encouraged to read scientific papers with a critical view and follow the latest scientific developments, develop and question hypotheses, design and independently carry out a research project, and take part in multidisciplinary studies. A 24-credit coursework is usually completed in two years and followed by the qualifying exam. The supervising professor is selected at the end of the first year so that the thesis project can be designed and the preliminary experiments can be done during the second year. At least two additional years are needed to complete PhD thesis. The thesis work is expected to end up with a minimum of one original research article.

**Keywords:** Biochemistry, Enzyme, Kinetics, Proteomics, BiochemicalGenetics, Metabolism, FreeRadicals, GeneExpressionRegulation, MolecularInteractions, SignalTransduction, PhD program.

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POSTDOCTORAL EDUCATION AT THE MEDICAL SCHOOL, UNIVERSITY OF PECS HUNGARY

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In our present poster we would like to give the participants of ORPHEUS Conference a little insight about the PhD education at our University. Data about PhD education at Medical School, University of Pecs have been collected since 1993.

The PhD program is a training, researching and publishing activity within the framework of individual or group training that is adjusted to the characteristics of the branch of science and the demand of the doctoral candidate. Students from sites providing master courses are entitled to attend a PhD program only if they have already completed their master's



course. Those applicants can be admitted to the PhD program that meet the entry requirements and have passed the entrance examination.

PhD program is conducted by four major Doctoral Schools. Within Doctoral Schools, Doctoral Programs are established having their own subject area and leader.

The four major doctoral Schools are:

1. Theoretical Medical Sciences
2. Clinical Medical Sciences
3. Interdisciplinary Medical Sciences
4. Science of Pharmacology
- 5.

In our study we have compared the different Doctoral Schools from following aspects:

1. Number of PhD graduations since 1993
2. Average duration of PhD studies required until graduation
3. Number of PhD students participating in the different PhD programs at present time.

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### **PHD EDUCATION AT FACULTY OF MEDICINE UNIVERSITY OF BELGRADE**

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As Serbia's largest medical training centre, Faculty of Medicine, University of Belgrade offers attractive PhD programs in basic biomedical sciences, preventive and clinical medicine. The PhD training at Medical faculty is structured and organized activity of early stage researchers and medical doctors who have either started or completed their medical specialization. Studies are organized in thematic programs. The PhD programs in molecular medicine, physiological sciences and skeletal biology aim to educate early stage researchers who are oriented towards engagement in science as profession. Programs in neurology, endocrinology, reconstructive surgery and cardiology are for medical doctors who are interested in linking science to clinical application. The duration of PhD training is 3 years, and consists of structured courses and original research. The mandatory training component comprises 30 ECTS, corresponding to a half year of workload. Science theory, ethics and dissemination of research results are mandatory elements in the training. Besides, accompanying courses provide advanced education and skills in the field of the respective thematic program. The PhD projects in molecular medicine, physiology and skeletal biology must be part of an internationally peer-reviewed project. First authorship of at least one peer-reviewed publication in a scientific journal covered by SCI or CC is compulsory. The research work is written up as thesis (monograph). The thesis is evaluated by Advisory board and by a committee consisting of two internal and one external opponent. If approved, the thesis will be defended in public by discussing the research findings with the opponents. More than 200 doctoral candidates are currently affiliated with Faculty of Medicine in Belgrade. Advisory board allows for continuous evaluation of the PhD training, and in 2011 special emphasis will be put on improving the diversity of thematic PhD programs in the field of clinical medicine.

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### **THE PHD PROGRAM IN BIOMEDICINE OF THE UNIVERSITY OF CORDOBA AND THE MAIMONIDES INSTITUTE FOR BIOMEDICAL RESEARCH**

**Francisco Gracia-Navarro**

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Translation of the results of basic biomedical research into clinical practice is one of the main challenges of modern research in the health sciences. To achieve this goal, it is necessary to integrate clinicians and basic researchers within the same organization and to promote their effective interaction. The Maimonides Institute for Biomedical Research in Córdoba (IMIBIC) is the promoter of the PhD Program in Biomedicine of the University of Córdoba (UCO) in Spain. This program is mainly focused on the education of biomedical researchers specialized in translational biomedicine. To access this program, students are required to have completed a graduate level in biomedical and health sciences or in other related areas, and to have completed a master with 60 ECTS (European Credits Transfer System) in areas related to biomedicine and health sciences, specially focused to education in research. The practical period on experimental research of the PhD studies must be developed within a line of research offered by the program. In order to guarantee the excellence of the program, the lines included have to demonstrate enough financial support obtained in public



competitive calls. During the development of the experimental period, students develop a complementary education program composed of specialized courses and a specific cycle of seminars in translational biomedicine. Finally, to ensure the excellence of the program, before its presentation and public defence, it is required that the thesis has generated at least one publication in an international journal included in the ISI. In addition, the members of the jury who judge the thesis have to demonstrate a high level of competence by documenting previous results in biomedical research (publications, financial support, etc.). With all these requirements, during the last six years the Program has generated a total of 88 PhD Thesis, with a mean of 3,18 first tertile ISI publication per Thesis. The PhD program is also under continuous analysis, by means of a Unit of Quality Control, to ensure its excellence and to identify aspects that can be improved.

**P27 EFFECTIVENESS OF POSTGRADUATE EDUCATION IN DOKUZ EYLUL UNIVERSITY SCHOOL OF PHYSIOTHERAPY**

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*Dokuz Eylül University, School of Physical Therapy and Rehabilitation, Izmir-TURKIYE*

Undergraduate education in Dokuz Eylül University School of Physical Therapy and Rehabilitation started at 1992-1993 academic year. Graduated students were accepted in Master of Science (MSc) programs at 1996-1997. Philosophy of Doctorate (PhD) education started at 1996 and 5 students graduated at 2000. Totally 28 students had PhD degree by the year 2010.

All PhD students completed their PhD program credits at the Dokuz Eylül University Institute of Health Science, some of the thesis' researches were performed at the Dokuz Eylül University Hospital, School of Physical Therapy and Rehabilitation and some at abroad.

First international collaboration started at 2005 with Maastricht University Health Science Faculty, The Netherlands. Within the context of this collaboration, 4 students conducted their MSc dissertation projects and 2 students performed their PhD dissertation projects at Human Movement Science Laboratory of Maastricht University. The students stayed for 3-8 months within the scope of Erasmus Student Exchange Program. During their stay the students also attended on courses related to their field and courses with totally 50 European Credit Transfer System (ECTS) were completed. The thesis defense examinations of these students were carried out in English with the participation of their second advisors from Maastricht University as a jury member.

To be able to evaluate effectiveness of PhD program in our department we decided to investigate whether these PhD thesis has been published or not. We also looked for the publications which were not related with the PhD thesis during the PhD education period. We searched the name of the students and the year of their publications via Pubmed, PEDRO, Medline, Scopus, Index Medicus, CINAHL and Cochrane Database. After the publications during PhD education period were determined we also searched for the number of citations by using web of science. As a result totally 8 numbers of scientific paper obtained from PhD thesis data were published in one of international journals indexed by Science Citation Index or Science Citation Index-Expanded. 49 scientific papers which were not related with thesis' subject were published in the internationally indexed journals by the students during their PhD education period. These articles were cited for 431 times in total by other studies.

**P28 POST-GRADUATE EDUCATION IN MOLECULAR MEDICINE AT GRADUATE SCHOOL OF HEALTH SCIENCES, DOKUZ EYLUL UNIVERSITY, IZMİR, TÜRKİYE**

**Duygu Harmancı, Roghaiyeh Safari, Reza Salimi, Gul Guner Akdogan**

*Institute of Health Sciences of the Dokuz Eylül University*

In recent years, this multidisciplinary modern discipline has been defined as "the medicine of the future". Especially following the sequencing of the human genome, the importance of molecular medicine has increased significantly. Today, molecular medicine is defined as an area where academic medical research is combined with industrial and clinical applications. Around the world, many centers are engaged in teaching and research in the area of molecular medicine. The aim of post-graduate education in molecular medicine is to educate well-equipped scientists capable of research integrating the molecular mechanisms of cells, tissues, and organisms with medical information. Dokuz Eylül University Graduate School of Health Sciences is the second example in Türkiye (following Istanbul University) inaugurating post-graduate education in molecular medicine (from September 2009, on). Students from science start with MSc, while graduates of medical school start with PhD. Prerequisite for admission is a 55 or 60 (out of 100) for MSc and PhD degrees, respectively, from the centralized post-graduate examination (Turkish GRE), as required for all programs of the Graduate School. Admission to the program involves a two-step evaluation procedure. On the first step, the jury evaluates the candidate's educational history, the motivation letter and two academic references. The second step consists of an



interview. The programs of study in MSc and PhD degrees respect the general rules of the graduate school, while providing for flexibility with a wide range of elective courses and the possibility of choosing one's supervisor (and research theme). Generic courses help the students acquire the skills of learning, teaching, and research and prepare them for a successful career. Today fourteen students are in this program; three of them PhD students and eleven of them MSc students. In addition to two of them are foreign students from neighbour countries.

**P29 POSTGRADUATE EDUCATION AT THE PhD STUDY „HEALTH AND ENVIRONMENTAL ENGINEERING“, SCHOOL OF MEDICINE, UNIVERSITY OF RIJEKA, CROATIA**

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The PhD study “Health and Environmental Engineering” is, besides “Biomedicine”, a PhD study organized by the School of Medicine, University of Rijeka, which has an experience in postgraduate studies organization for over 40 years. Different PhD programs of Biomedicine have been developed and in the last five years, substantial improvements due to Bologna process implementation have been done.

“Health and Environmental Engineering” is the newest PhD program, which started in the academic year 2006/2007. The primary purpose of this PhD study is quality education of scientific researchers in the field of environmental science, molecular medicine, biochemistry, biotechnology, immunology and other basic molecular sciences. It is intended for graduate students from the fields of biomedicine and health (all fields and branches), natural sciences (biologists, biochemists, chemists), and several social sciences (psychologists, defectologists, bioethicists). The postgraduate PhD study is interdisciplinary by its content and multidisciplinary by its program and selected fields. The curriculum enables acquiring knowledge by integrating and expanding basic knowledge from different fields such as chemistry, biochemistry, microbiology and toxicology.

The PhD study “Health and Environmental Engineering” encompasses mandatory and elective modules, each consisting of several courses, with determined number of ECTS points. The credit system applied in PhD study complies with the ECTS system, having 180 ECTS points in total. The principal scheme of lessons and the appertaining student credits in the full program are as follows: First year - mandatory and elective courses – 60 ECTS; Second year - mandatory and elective activities (30 ECTS) + scientific research (30 ECTS); Third year - stay in another research institution (30 ECTS) + scientific research (30 ECTS). Besides the organization of the study programs as full-time study (6 semesters-3 years), it is also designed as a part-time study (10 semesters-5 years), which enables attendants to simultaneously accomplish the doctoral study and professional programs, such as specialist training. The mentor should write evaluation reports after each year. Upon the mentor's positive final report, the student may enter the procedure for the defense of the PhD thesis. The study completes with PhD thesis defense, which comprises a written work and public oral presentation of scientific results, evaluated by a scientific committee.

The PhD study “Health and Environmental Engineering” is based on the new scientific achievements; therefore the lecturers of various profiles are included in the study. Besides the lecturers from the School of Medicine, University of Rijeka, there are also lecturers coming from the other higher education institutions at the University of Rijeka (Faculty of Engineering; Faculty of Civil Engineering; Faculty of Tourism and Hospitality Management, Opatija; Faculty of Law) and from University of Zagreb (Medical School, Faculty of Pharmacy, Faculty of Food Technology and Biotechnology, Faculty of Chemical Engineering and Technology, Faculty of Science) and guest lecturers from “Ruđer Bošković” Institute and foreign higher education institutions.

The PhD study “Health and Environmental Engineering” is equivalent to analogous studies in most of the Western European countries. The program is open to foreign and domestic universities through allowing students that part of scientific research is carried out in other laboratories. Exchange of students through the ECTS systems is organized as well.

Admission criteria as well as the criteria for quality evaluation of PhD thesis are in accordance with the “Guidelines for Organization of PhD Programs in Biomedicine and Health Sciences”, reached at the Second European Conference on Harmonization of PhD Programs in Medicine and Health sciences.



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THE CURRICULUM OF PhD DEGREE OF PHYSIOLOGY IN IRAN

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Scientific field of physiology is a combination of biological science, Physics, Chemistry and mathematics. Physiology is one of the oldest fields of science and the medical sciences.

Many of the ancient physiological doctrines were eventually discredited by Ibn-al-Nafis (1213–1288). He described correctly the anatomy of the heart, the coronary circulation, the structure of the lungs, and the pulmonary circulation. According to scientific advances in the methodology and expanding the borders to the level of molecular physiology and the need to integrate fields of basic and clinical sciences a progressive approach to awarding the PhD course of physiology needed.

Therefore philosophy of this period in order to compensate the shortage of personnel scientific committees of the universities of the country in the field physiology education and training expert and researcher, efficient with Iranian nation and high professional skills in the national and international and creativity and innovation is very valuable. The mission training physiology at the universities is education experts. In the future will be able to do high-quality education in different levels. The Vision is that expected that experts and graduates of this program capable of accompanied with high-speed development in the medical sciences. Aims of this course are: -powerful in collecting, the transfer of knowledge and evaluation update physiology - Expert ability and capability to design and implementation of the update of research, analysis and evaluation research findings with knowledge - To produce knowledge - Organizing and management of education and research. The educational roles are: - Participation in the planning, and the codification of university education courses related to the field of physiology - Participation in the design, compiling and evaluation educational programs related field of physiology - Identification of effective in the success or failure of educational programs - Organizing and management training affairs - Cooperation with other experts in educational goals - Human resource training in different levels of physiology. The Role as Researcher is: - Design, execution and leading research projects in the form of research - Identification of effective factors in the success or failure of the field of physiology research programs –

The organization and management of research- Cooperation with other experts to research goals- Producing the articles with research findings- Utilization of scientific achievements of this field expert- Present research findings in scientific community domestic and international - Criticism and investigation of the projects and research articles- The launch of the research wares and set ups. The role of communication is: - Relation with industry for funds and research resources - Design and execution the researches that related to industry and social items - Relations with other fields like medical engineering, biotechnology, Molecular Biology - The general strategy for this course education is a combination of teacher centered student centered education with follow characteristics:- Integration of theoretical and practical lessons for improving the level of knowledge and skill training - Students in this course can continue the activities for the execution of the seminar, educational and research project, execution a conference or a journal club - Strengthening and development of information system with scientific centers in the world- Presenting research findings in the form of articles in domestic and international magazines. The participants in this course must have a certification for MSc in one of the field of physiology, human physiology, animal physiology, biology (animal, cellular and Molecular), nursing, anesthesia, midwifery, or general MD degree in one of the fields of medicine, dentistry, pharmacy and veterinary. Duration and all items in the period of PhD course of physiology are designed according to the regulations of education doctorate (PhD) approved by the Supreme of Education Planning. This includes two stages of education and research. The time of the education of students in entrance examinations have begun and students after the passing of the training and entered the comprehensive research period. The duration of training stages are four semester. The all-academic graduation in Iran was conducted in two periods or terms in each year. Each term include 135 days or 4.5 months. The total number of coursework units of this coursework includes 43 coursework units, 17 of them are core units, 6 units are specific but optional coursework (non-core), and 20 coursework units is the thesis. Student is required 6 coursework units of specialized optional coursework's (non-core) that under supervision of his or her supervisor and approval of the department council in relation with research thesis research must be spend. Reparative coursework's: 7 units. Specific mandatory coursework's (core): 17 units. Specific optional coursework's: (non-core) 6 units out of 49 units. Thesis: 20 units. Total: 43 units



**P31 THE CURRICULUM OF PhD DEGREE OF MEDICAL ANATOMICAL SCIENCE IN TARBAT MODARRES UNIVERSITY (IRAN)**

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The Anatomical Sciences is one of the oldest and most basic medical sciences to study the microscopic and macroscopic structure of the human body. It does with the tools and anatomical cadaver dissection as an important part of medical education is discussed. With the advent and application of tools is developed such as light microscopy and subsequent advances in techniques such as EM and Histochemistry and tissue culture cells (Cell and Tissue culture) allows the study of structure and learn the structure provided And domain knowledge to explain Histology and Cytology and biology. Course of Anatomical Sciences explored study and research in building the human body in three subsets: Anatomy (Macroscopic Anatomy), Histology (Microscopic Anatomy) and Embryology (Development Anatomy). Graduates of this degree can to capable of teaching and research and management in the above areas have in national and international levels. The mission of this course consists of: - training and familiar with methods and techniques of teaching and research in the field of anatomical science - understanding the structural characteristics of humans and other animal species in terms of macroscopic, microscopic and developmental, microanatomy – using other modern methods, discovering talents and the necessary motivation of research - the way and areas for learning and better in medical supply - health promotion to have contributed society. Holders of PhD degree in the Anatomical science are a group of professionals providing services in education and research. They have been considered to this mission in the educational research centers. Expected within the next 10 years Graduates PhD degree of anatomical science are accountable to the Universities and country's educational needs in different fields of anatomical science. As well as performing basic research, the composition of basic and clinical research makes conversion section Anatomy to be one of the most prominent universities and departments. Program goals of PhD degree anatomical science is: - training human resources -making use of new scientific literature so the latest information in the field of structural characteristics of the human body macroscopic, microscopic and development- With new methods and techniques in science teaching and research - Using basic and applied research techniques, preparing the scientific literature and educational materials to share in the expanding frontiers of knowledge are described - to do with other academic disciplines and industry formation. Graduates in the anatomical science involved education, research, management and communication with the industry. The terms of program is used with the central strategies of the teacher-centered or student-centered for the integration completely different branches of other sciences anatomical sciences. Curriculum development based on professional duties is the future graduates. Research models will predict to plan by changes in duties graduates. The similar field within the country does not exist. Including countries that specialized in doctoral (PhD) anatomical sciences same are: USA, Canada, UK, Japan, India, Malaysia, Australia and most European countries and Central Asia and South America. Duration and all items in the period of PhD course of Anatomical Science are designed according to the regulations of doctorate (PhD) approved by the Supreme of Education Planning. This includes two stages of education and research. The time of the education of students in entrance examinations have begun and students after the passing of the training and entered the comprehensive research period. The duration of training stages are four semester. The course consists of two stages is the education and research. The total number of specialized doctoral courses (PhD) degree anatomical sciences 50 units including 25 units dedicated compulsory (core) and optional five specific units (non-core) Total 30 units and 20 specialized units is the thesis. Educational stages: the training stage the student is required to pass 30 units in addition to specific courses relevant department with the diagnosis confirmed by a number of University Graduate Council Courses deficit or compensatory (Table A) the maximum spend up to 16 units. Research Stage: After passing the exam, students started with theses (20 units) and passing defense and accepts the end.

**P32 PHD PROGRAM IN DEPARTMENT OF HISTOLOGY AND EMBRYOLOGY IN THE DOKUZ EYLUL UNIVERSITY (TURKEY)**

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The cell is the fundamental unit of all life on earth. Histology & Embryology defines the very center of all efforts to understand all aspects of cell and human diseases. Research in the department of Histology & Embryology seeks to



elucidate the molecular basis of how cells are constructed, how the thousands of cell types accomplish their individual tasks, and finally how these different cells cooperate to form tissues, systems, and organisms. To obtain original scientific data, more extensive cooperation with other medical branches needed. Lots of instrumentals tools such as light microscope, electron microscope, confocal microscope, X-ray microscope, nanotomography, cryo-SEM etc. and technics such as histochemistry, cytochemistry, immunohistochemistry help us to reveal the mystery of cell and developing embryo.

The mission of the department of Histology & Embryology PhD training is especially to improve the scientific knowledge of students in the field of Histology & Embryology by using new techniques and methods, to participate in basic researches and to assist theoretic and laboratory practices of medical education. Besides not only make them to gain analytical and interpersonal skills but also have the combination of tenacity, willingness to help and good communication skills. So that, they have got good sense of responsibility and confidence to support their statements with specific instances. The postgraduate education of the department of Histology & Embryology provides the students in future to participate in medical faculties, research centers (biomedical engineering centers, biotechnology centers, nanotechnology centers), clinical centers (in vitro fertilization centers).

As a result, the PhD training in Histology & Embryology light the way for understanding the basic biological aspects and pioneer for new inventions in health sciences.

**P33 AN OUTLOOK TO THE SCIENTIFIC ACTIVITIES OF SUPERVISORS AT DOKUZ EYLÜL UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES**

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Dokuz Eylül University Graduate School of Health Sciences was established in 1982 to coordinate MSc and PhD education programme in various fields related to medical and health sciences, according to the regulations of Turkish Higher Council of Education. The MSc and PhD programs aim to produce outstanding research-oriented medical and life science graduates and provide comprehensive and interdisciplinary research training in various fields. Currently, there are 211 supervisors in Graduate School of Health Sciences at Dokuz Eylül University. 107 of these supervisors are professors, 51 of them are associate (assoc.) professors and 53 of them are assistant (assist.) professors. The supervisors are working at the Departments of Medical School, Departments of Graduate School of Health Sciences, Institute of Oncology, Nursing College and Physiotherapy and Rehabilitation College. We investigated the total number of journal publications (published in SCI, SCI Expanded, SSCI and national peer-reviewed journals), conference presentations, grants and awards of the supervisors, between the years 2000-2010. Total number of journal publications are 6745. The professors, the assoc. professors and the assist. professors published 69.9%, 21.7% and 8.4% of these articles, respectively. The number of publications between 2000-2010 are 5038. Total number of citations for the articles are 17330. Total number of conference presentations are 11507. The professors, the assoc. professors and the assist. professors made 67.7%, 21.7% and 10.6% of these presentations, respectively. Total number of grants are 1161. The professors, the assoc. professors and the assist. professors received 56.3%, 29.5% and 14.2% of these grants, respectively. Total number of awards are 455. The professors, the assoc. professors and the assist. professors received 55.6%, 29.2% and 15.2% of these awards, respectively. Our data show that the number of grants and the number of the journal publications are increasing in the last few years. As a result, Dokuz Eylül University Graduate School of Health Sciences is becoming one of the top graduate schools at scientific activities.





**P34 THE M.Sc. NEUROPHARMACOLOGY PROGRAMME, NUI GALWAY, IRELAND: A USEFUL PREPARATION FOR A PhD IN THE NEUROSCIENCES**

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The Department of Pharmacology and Therapeutics, NUI Galway Ireland has been actively involved in postgraduate neuropharmacological research for nearly 40 years. Since 1998, we have offered the M.Sc. Neuropharmacology whose purpose is to provide a comprehensive foundation in experimental approaches for the pharmacological treatment of CNS disorders. Since its inception, nearly 130 students have successfully graduated, a high proportion of whom have then embarked on a PhD programme. The M.Sc. Neuropharmacology has been accredited to the Network of European Neuroscience Schools (NENS), providing a platform for development within a European context. The teaching faculty for the programme is drawn from academic members of the Neuroscience Research Cluster, NUI Galway, particularly in the provision of research projects. This provides a range of research approaches that are appropriate and relevant, reflecting the diversity of experimental techniques employed in the fields of Neuroscience and Neuropharmacology. The M.Sc. Neuropharmacology is a "conversion" programme, admitting entry from a wide variety of undergraduate disciplines. It consists of 3 segments, divided into Trimesters. The first Trimester is of a foundation nature, enabling students to find their feet in the areas of Pharmacology, Neuroscience and develop their experimental skills. The second Trimester builds on this investigating Neuropharmacology, whilst the final Trimester is devoted to a research project. The pedagogical approach consists of a range of educational activities consisting of lectures, workshops, practicals and tutorials, which utilize the latest resources for their delivery, including extensive use of the virtual learning environment, Blackboard. In conclusion, the M.Sc. Neuropharmacology programme has proven to be a successful education experience for our graduates, providing them with a range of valuable skills that have enabled them to pursue productive careers in the Biomedical Sciences within Ireland and overseas.

**P35 IMPLEMENTATION OF ORPHEUS PhD STANDARDS IN A SMALL TRANSITIONAL COUNTRY**

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As reported by Professor Nada Čikeš, Dean of the School of Medicine University of Zagreb (SMUZ), on behalf of Deans of all four Croatian Schools of Medicine (Zagreb, Rijeka, Osijek and Split) at 2007 ORPHEUS Helsinki Conference, in the last few decades 50-60 PhD theses in Biomedicine and Health Sciences has been successfully defended per year, the majority of them at the University of Zagreb. However, about 75% of these theses did not result in a publication in any of the internationally recognised scientific journals. Following the adoption of Zagreb Declaration at 2004 ORPHEUS Conference, the four Croatian Schools of Medicine started to implement its recommendations on publishing in peer-reviewed journals. Consequently, the PhD Programme "Biomedicine and Health Sciences" run by the SMUZ introduced the requirement stipulating the publishing of at least three articles bringing the PhD content in peer-reviewed journals prior to the PhD thesis defence. Out of these, one is to be published in a CC-indexed journal with impact factor  $\geq 1$  and the PhD candidate as the first author.

Most of our PhD candidates are clinicians, not full-time researchers; nevertheless, in the last five years their productivity has significantly increased. In the academic year 2009/10, a total of 44 PhD theses had been successfully defended at the SMUZ by candidates who started their PhD studies 6.6 years ago (on the average). Preliminary analysis of their publication tracks showed that they authored on average 6 papers published in CC-indexed journals, out of which two as the first authors. In addition, they managed to publish on the average of 2-3 papers in MEDLINE-indexed journals. These results clearly show the positive impact of ORPHEUS standards on the publication output and proved their suitability not only for PhD candidates dealing with basic sciences, but for those coming from clinical settings as well.



6<sup>th</sup> ORPHEUS Conference in the Dokuz Eylül University  
ABSTRACT BOOK  
STRATEGIES TO IMPROVE PhD EDUCATION



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CERTIFIED-SCIENCE-TRAINING (CST) FOR THE 3. CYCLE OF LIFE SCIENCE STUDIES

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The Charité- Universitätsmedizin Berlin is introducing a certified-science-training (CST) environment to support scientifically oriented students in the 3. cycle of their studies of the life sciences. It thereby advances the visions and objectives of the 2005 Bergen communique on doctoral programmes within the European Higher Education Area as part of the Bologna Process. The main principles of CST are as follows:

- In analogy to the established system of CME (continued medical education) for clinical medicine CST will certify contents with relevance to the methodological, administrative and communication aspects of scientific work.
- CST will search for, analyse, evaluate and certify contents from all sources that can supply the needed degree of quality.
- It is envisioned that sources will – amongst others - encompass extra-university institutions like science institutes, professional societies, industry and commercial schools.
- Special emphasis will be on the push against „statistical illiteracy“.
- CST credit points will be assigned to courses and their participants.
- The credit points will be administered and their presentation will be mandatory for the students at the end of the doctoral phase.
- It is envisioned that CST will significantly improve the average quality of doctoral research within a decade.

P37

EUROPEAN GRADUATE SCHOOL OF NEUROSCIENCE

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EURON (European Graduate School of Neuroscience) has grown into an international network of European universities that strongly works together to unravel the processes underlying brain dysfunction by carrying out scientific research on the continuum from basic neuroscience to clinical research. Establishing of an International European Master in Neuroscience (EMiN) between the universities is our new project. This fits with the 3 – 2 – 3 variant according to the Bologna treaty for Bachelor – Master – PhD degree.

Ege University is an associate partner of EURON since 2009. The opportunities of this membership and the difficulties of establishing an integrated neuroscience master and PhD education program will be discussed.

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THE POSSIBLE ROLE OF BIOINFORMATICS IN PhD EDUCATION IN BIOCHEMISTRY

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Bioinformatics is a newly introduced multidisciplinary field of bioscience. Its development has been accelerated after genomics and proteomics projects. Within the scope of these projects, huge number of sequences such as protein, DNA and RNA had to be evaluated very fast and accurately. Collaboration of the experts from biochemistry, biology, medicine, computer sciences, statistics, electrical and electronics departments have provided a big contribution to development of user-friendly sequence analysis tools so far. However, the production of educational materials on the bioinformatics has not been sufficiently developed parallel to the produced tools in bioinformatics. Therefore, the educational materials and also training programs related to bioinformatics are needed for Ph.D. students in biochemistry field. Applications of wavelet theory as an example method used in bioinformatics such as estimation of membrane spanning regions of membrane proteins, prediction of subcellular locations of apoptosis proteins, identification of protein coding regions of DNA, distinguishing enzyme structures from non-enzymes, multiple sequence alignment and secondary structure analysis of proteins are reviewed in the present study. It is also recommended that these and similar bioinformatics based subjects should be integrated into biochemistry Ph.D. curricula and implemented in the research as possible themes in order to give a support to increase the quality of Ph.D. education.

**Keywords:** Bioinformatics education, wavelet theory, post graduate education.



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**HOW TO IMPROVE THE PhD PROGRAM ADMITTANCE SELECTION PROCESS. PROPOSING A  
“SELECTION IMPROVEMENT TOPICAL TEAM”**

**F. Saverio Ambesi-Impiombato**

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Student quality is instrumental for approaching THE final goal of all University systems, i.e. the output of high-quality Graduates.

Particularly within its highest level degree, the PhD program, besides the excellence of the other components: a) Organization and activities; b) Supervisors; c) Tutors; d) Research environment, the Students quality certainly plays a major role.

While progressively improving our PhD programs, also by means of the Quality Indicators as discussed at this Conference, we expect a consequential increase in the quantity and quality of the new Candidates applying and eager to enroll every year. To get the maximum benefit from the above mentioned improvements, we must then refine our Admittance Selection process, to consistently choose the BEST Candidates.

I propose that we address this issue within our European collaborative scenario (ORPHEUS), by creating a “Selection Improvement Topical Team” (SITT), in which Colleagues could interact mainly remotely within the Team by email, teleconferences etc, in order to:

- Create a database of the present selection strategies, already applied in the participating Universities;
- Compare the pros & cons of the different methods, considering the Quality Control strategies under discussion at this Congress for other aspects of PhD Programs;
- Develop a consensus on Quality Indicators (QI) for PhD applicants, also considering the possibly different cultural background;
- Propose evaluation grids and methods for positively selecting the defined QIs during the PhD program Admittance Selection process.

Results could be presented and discussed at future ORPHEUS Conferences, and also published.

A preliminary list of possible QI will be presented during the Communication, for stirring an initial critical discussion at Izmir.

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**NEW PARADIGM OF PhD EDUCATION AT TSU FACULTY OF MEDICINE IN GEORGIA**

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This paper deals with the case of implementation the new PhD programs at Faculty of Medicine at Tbilisi State University, as an example of establishing the new paradigm of PhD Education in Georgia.

Higher Education system of Georgia has been in the process of extensive reforms since 2005, for that time two major innovations were carried out: the new law about Higher Education was adopted and Georgia joined the Bologna process.

In the regards to the law and Bologna process three cycle of education (Bachelor, Master and PhD) and ECTS system was implemented. According to the Law the duration of PhD program is 180 ECTS.

At the level of Tbilisi State University the minimal standards of PhD Education was elaborated and proved by TSU Academic Council. The document clarifies the minimum requirement for admission, enrolment and access criteria to the programs, requirement for the PhD thesis, supervisor, evaluation etc. According to this document The structure of each PhD program in TSU should include teaching component (40-60ECTS) and research component (140-120ECTS). Training in transferable skills is part of the teaching component.

At the level of Faculty of Medicine the Statement of PhD Education was elaborated. The additional requirement for the PhD thesis, supervisor, evaluation was implemented (for ex. article in peer-review journal should be published, assessment board includes one member from other Educational Institutions, etc).



The aim of the Faculty of Medicine regards the updating the approaches for PhD program is harmonization PhD Education in Georgia with the PhD Education in Biomedicine and Health Sciences in the European Higher Educational Area.

**P41** **AIETI HIGHEST MEDICAL SCHOOL'S PhD PROGRAM IN BIOMEDICINE AND HEALTH SCIENCES AND THE QUALITY ASSESSMENT ASPECTS**

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Outcome-based learning is a perpetual concept of a teaching technology particularly in PhD education. Currently, we only discuss the importance of the issue in a modern vision and newly comprehend it. In the time being, a consciousness exists that the quality assurance in PhD education implies an involvement of outcomes in the planning of curricular goals/objectives and organization of educational, research, human, material and technical resources. It leads to common-sense curriculum design specifying - what PhD students learn, and providing a clear and unequivocal statement of - what the end-product will be like. So, one of the important quality aspects of PhD program which will be a reference point for assessment is what we expect graduates will learn in terms of knowledge, skills and attitudes (generic academic and research area specific skills). Then, as there are many factors influencing quality, the following dimensions can be distinguished: quality of the input (quality of academic and support staff, student advice and support, facilities and infrastructure); quality of the process (program specification; content and organization; didactic concept and assessment) and monitoring of the quality assurance (PhD students evaluation, curriculum design, staff development activities and benchmarking for analyzing the own program quality).

In order to map the quality we need: (1) a clear model to guard against looking some aspects while ignoring others and (2) such model will implies instructions. But, by our opinion, in case of PhD study program we have to discuss the issue not only as a model but as a system for the development. When the quality assessment is to be done for the first time it mainly helps us to understand - what in our traditional systems does need a correction, and also it can produce ideas for further development. So, the more consequence term for the PhD quality indicators will be recommendations. The thesis presents AIETI Medical School PhD Program in Medicine and Health Sciences and its quality assessment aspects.

**P42** **INTEGRATIVE SYSTEM DEVOTED TO IMPROVEMENT PhD STUDY AT JESSENIUS FACULTY OF MEDICINE COMENIUS UNIVERSITY IN MARTIN**

**Jan Hanaček, Kamil Javorka, Juraj Mokřý, Jan Staško**

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In the curriculum of undergraduate general medicine study program JFM CU was missing systematic scientific preparation, and in PhD study was insufficient education in important parts of this program, too. We considered this situation as inappropriate. This was the reason we try to improve PhD study by creating an integrative system implemented into pregradual and postgradual medical education.

On the base of previous analysis of PhD education system we prepared proposal of a brand new content, education methods and organization of the PhD system.

A new subject "Scientific preparation" was introduced into the curriculum of undergraduate medical education. To introduce of students into essentials of science was the main objective. The subject is scheduled in the 3<sup>rd</sup> study year. Another subject – "Student scientific activities" – was introduced into 4<sup>th</sup> to 5<sup>th</sup> study year, aiming to increase a motivation of students for research work. "Diploma thesis seminars" with scientific merit as new subjects were also introduced in 4<sup>th</sup> and 5<sup>th</sup> study year, focused on cooperation and supervision of students work by their tutors. Since 2009y regular meetings of PhD students ("brainstorming"- BS) were introduced. Their aims were to create a basis for sharing scientific and social information among PhD students from different departments, for presentation of students` introduction to their research projects, their preliminary and final results, and to brake down inter-departmental isolation. Until now 21 BS were organized with average attendance of 76% of all full time PhD students per one seminar. There are several positive aspects of the BS we could observe up to now.



As the impact of introduced changes in PhD education will not be visible immediately, evaluation tools should be created next year and introduced for careful analysis and possible corrections of these changes.  
Supported by EU Project ITMS 26110230031

**P43 EUROPEAN SOCIAL FUND PROJECT SUPPORTING THEORETICAL AND PRACTICAL EDUCATION TO SCIENTIFIC WORK**

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Jessenius Faculty of Medicine, Comenius University (JFM CU) has obtained the financial support from European Social Fund (ESF) dedicated to the project entitled „Support of human resources development using the most modern methods and forms of education at JFM CU in Martin“ (ITMS 26110230031; period 06/2010 - 05/2013).

The project is aimed 1) to increase the motivation of pregraduate students to scientific work; 2) to a direct support of the PhD study through activities popularizing the science; 3) to improve the quality of theoretical and practical education in pregraduate and postgraduate study; 4) to support e-learning study and 5) to create Faculty Simulator Centre for the implementation of modern teaching methods in biomedicine and health sciences.

Direct support of the PhD study is realized by many ways: Awarding grants for 10 PhD students for 24 months. In the framework of the Project there are organized regular meetings of PhD students together with tutors, student presentations and discussions about the research results and routing of their dissertations (brainstormings). Annual PhD conferences and courses of science methodology are also the matter of Project. The Awards of the Project for the best three PhD students and three best tutors annually, travel grants for study stay, support of the participation at scientific conferences and publishing of faculty scientific journal „Acta Medica Martiniana“ are supported too. All these activities are open and financially supported also to tutors to enable the scientific events participation together with their PhD students.

Special activity of the Project is a generation of five postdoctoral positions paid by the Project for 30 months to the best PhD graduates. On the base of the experiences by these positions, a proposal for Ministry of Education will be worked up for the constitution of paid postdoctoral positions at Slovak universities.

ESF Project at JFM CU in Martin supporting education of the undergraduate and postgraduate students to the scientific work has become further impulse for enhancing quality in this educational field.

**P44 RESEARCH ENVIRONMENT FOR PhD STUDENTS IN BIOCHEMISTRY IN THE MEDICAL UNIVERSITY OF SOFIA**

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The International Standards for the PhD Degree in Biomedicine are valid in Medical University of Sofia. Holders of a PhD in Medical biochemistry should demonstrate a general knowledge of biomedical sciences, and a detailed knowledge of the area of research, be familiar with the research literature of Medical biochemistry and should have the ability to keep abreast of major developments and to acquire a working background in any area; demonstrate skill in the recognition of meaningful problems and questions for research; possess technical skill in laboratory manipulation; acquire oral, written, and visual communication skills; demonstrate skill in conducting productive self-directed research. Objective factors as modern laboratory equipment, computers and wide-band Internet, access to the European academic network GEANT 2, academic staff qualified in Medical biochemistry, clear formulation of teaching objectives, access to libraries, all these, are important necessary but not sufficient factors contributing positively to the PhD training. Together with them, other two subjective factors should be considered too: 1) the characteristic features of the “net” generation of today or the “Digital Natives” as described by Prensky (2001), and 2) need for pedagogical training of the academic staff or the “Digital Immigrants”. Therefore our work was focused on: 1) creation of virtual models, relevant to the style of thinking and perception of “Digital Natives”. The virtual models are used to help understanding and learning of complex molecular structures and visualization of expensive or dangerous experiments before actual performance. Virtual models also help basic concept reinforcement. 2) scheduled pedagogical training of the “Digital Immigrant” Educators at seminars to enable them to understand that if they really want to reach “Digital Natives” – i.e. all their students – they will have to change.

**Keywords:** Medical biochemistry, virtual models, digital generation



6<sup>th</sup> ORPHEUS Conference in the Dokuz Eylül University  
ABSTRACT BOOK  
STRATEGIES TO IMPROVE PhD EDUCATION



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GRADUATE PROGRAMS AND STUDENT-FACULTY SATISFACTION: A WEB-BASED PILOT SURVEY

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Graduate study, PhD in particular, is formation through research. The quality of graduate studies can be assessed in three broad categories: course quality, student-supervisor relationship and thesis quality. Hacettepe University Institute of Health Sciences Graduate Student Council was established in 2005 and could be an important instrument for monitoring the quality of the programs. Using web-based surveys a pilot study was performed among students and faculty from 55 departments to obtain spot feedback on the quality of courses, thesis work and supervision.

Two sets of surveys were prepared using Google Docs<sup>®</sup> application. First one was entitled “research in PhD education” and consisted of 10 multiple-choice questions. Second one was entitled “satisfaction level on education methods” and consisted of 20 questions of the same nature. Surveys were sent to all students (850) and faculty (1200) as web links attached to e-mails. Participation was voluntary and anonymity of the responses was preserved. 11.2% and 5.5% of all faculty and 17.9% and 21.1% of all students responded to the first and second surveys, respectively.

According to the first survey, both students and faculty agree that Hacettepe University is a research university but research administration needs to be improved. In the second survey, while both students and faculty expressed satisfaction in responses to direct questions on the quality and execution of the courses, there appears to be a concern over the quality of the courses in indirect questions. Similarly, although students and supervisors were satisfied with the match, selection of the supervisor seems to be a concern. These contradictory results suggest that supervising practices as well as taught courses should be monitored more closely by the institute administration.

Internet based surveys are easy to perform. However, more effort is needed to increase the participant return and Student Council should establish close links with all students, as well as with the faculty. Social media could be used to enhance participation in surveys.

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CONTRIBUTION TO PHD EDUCATION IN BIOMEDICINE AND HEALTH SCIENCES BY THE RUDJER BOSKOVIC INSTITUTE

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The Rudjer Boskovic Institute (RBI) is the largest Croatian Research centre for basic sciences participating also in science applications and higher education. About 15 % of RBI academic staff is in biomedicine, and majority of senior scientists are also involved in higher education through mentoring (Graduate, Master or Doctoral degree fellows) or Lecture courses on several faculties of University of Zagreb, Osijek, Rijeka and Dubrovnik, on the level of postgraduate and doctoral studies.

Lecture course leaders are in general carrying own scientific projects through which student fellows learn scientific thinking and experimental design as a first step in their scientific career. Also doctoral, master or diploma works are providing through main projects giving opportunity to students to be a part of the teams.

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BERGEN RESEARCH SCHOOL IN INFLAMMATION

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The Broegelmann Research Laboratory (BRL) is a medical immunology research unit at the University of Bergen (UiB) and Haukeland University Hospital. At the time UiB started to establish research schools, BRL had already the framework of a training facility and plans for further development. Bergen Research School in Inflammation (BRSI) at BRL formally received the status as a research school in 2005. The theme for the research school was later broadened to include infectious organisms, general immunology and tissue interaction in health and disease. The research school has become



an active and attractive training site. Since its establishment, 11 PhD candidates from various supervisors have successfully finalized their PhD. Today, an additional 12 PhD candidates and 8 post-docs are engaged at BRSI. Moreover, international visiting students frequently take part of the activities. Grants from NATO and EU (Marie Curie program) have enabled us to develop our research school to a high international standard. The primary objectives of BRSI are to improve the quality of the PhD and post-graduate training, to facilitate PhD and post-graduate training and to develop professional skills and collaborative experience. We have the following ambitions and standards: to be thematically focused; to create strong research training - networks to several institutes/faculties/institutions; to keep a size above critical threshold; and to foster professionally additive and synergetic effects. In practical terms, this means that resources are made accessible (biobanks, patient material, instruments, specialized laboratories, technology platforms etc.), that courses are organized, that regular seminars function as meeting points, and that the students receive feedback, support, reflection and critical evaluation of their work.

**P48 POST GRADUATE EDUCATION AT EGE UNIVERSITY MEDICAL SCHOOL, MOLECULAR PARASITOLOGY LABORATORY (MOLPARLAB) AND VACCINE DEVELOPMENT CENTER**

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Molecular Parasitology Laboratory (MolParLab) at the Ege University Medical School has been established in 2007. Thereafter, research projects have been conducted to develop molecular diagnostic protocols to detect and genotype *Toxoplasma gondii*, *Pneumocystis jirovecii*, *Echinococcus granulosus*, *Echinococcus multilocularis*, *Trichomonas vaginalis*, *Plasmodium* spp., *Cryptosporidium* spp., and *Acanthamoeba* spp. After the settlement of laboratory, two Ph.D. and one M.Sc. students have finished their thesis and graduated. Currently, the lab has enough capacity to conduct Ph.D. students' research projects. The future research topics of the laboratory include genotyping of parasites and development of novel molecular diagnostic tools.

Vaccine Development Center at the Ege University Medical School has been established in 2006 through several research project funded by national and international organizations. Since then, two Ph.D. students have finished their thesis and three M.Sc. students have started working on vaccine development center in funded projects. Currently, the lab develops DNA vaccines and adjuvanted recombinant protein vaccines against emerging infectious diseases. To develop recombinant protein vaccines, advanced protein expression and purification protocols are being used. Recombinant proteins are purified to homogeneity using His binding and gel filtration columns. At the end of the process endotoxin is depleted from purified proteins using anion exchange columns. Humoral immune response induced by vaccine model in animal models is being analyzed by Western blot and ELISAs. Cellular immune response induced by vaccine model in animal models is being detected flow cytometry analysis. International collaborations have been set to discover vaccine antigens using proteom microarrays. Our laboratories welcome national and international students who are willing to perform their research projects.

**P49 SUPERVISOR-TRAINING COURSES IN DOKUZ EYLÜL UNIVERSITY HEALTH SCIENCES INSTITUTES**

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The aim of PhD education is to develop a person with the appropriate skills and knowledge who is capable of conducting independent research of an international quality. At the end of the PhD education young researchers should have the knowledge, skill and perspective for independent, self-directed research. Therefore the roles of PhD supervisors and the national and international context of supervision have gradually changed. Nowadays, apart from their research activities, supervisors are responsible for different tasks such as being good teachers, as well as a facilitators, mental coaches, and evaluators of the progress. Many of the PhD supervisors want to improve their skills on the aims, methods and contents of the supervision. Therefore many universities are organizing training courses for the development of supervisory skills of their PhD supervisors, sometimes as a prerequisite to being allowed to accept PhD students. However Turkish Universities and Health Sciences Institutes did not have formal courses for the training of PhD supervisors up to 2007. To improve PhD supervision system in Dokuz Eylül University Health Sciences Institute (DEU-HSI), we decided to develop a supervisor-training course. To achieve this first we questioned the need for supervisor training courses; and then prepared a training program according to the requirements. These courses were implemented for the first time in Turkey at DEU-HSI. Since then, four courses have been applied to the supervisors and/or supervisor candidates at DEU-HSI. Furthermore the course was introduced to the Directors of HSI of Turkey and modified courses were applied to other

institutes in Turkey. In this study, the introduction and evaluation of this supervisor-training course were presented. Data was collected from 151 faculties who had participated in the courses by a five-point rating scale and also verbal and written feedbacks were also received. Participants were generally very satisfied with the organization, the curriculum and efficiency of the courses. The mean points were between 4.44±0.65-5.00±0.0 (1: poor, 3: medium, 5: excellent). No statistical significant differences were obtained between years and/or courses. As well as being beneficial for the supervisors and PhD students in DEU-HIS, the program is being used as a model for other graduate schools in Turkey. A newly structured supervisor-training course was organized with the contributions of DEU-HIS Supervisor Training Committee in different graduate schools and hopefully it will be a compulsory training for new inexperienced supervisors in a National context.

**P50** **WHAT HAPPENS TO PhD PROGRAM GRADUATES OF GRADUATE SCHOOLS OF HEALTH SCIENCES IN TURKIYE? A SURVEY OF THREE GRADUATE SCHOOLS**

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The aim of this study was to investigate and analyze the motivation, results and influential factors of the research work of graduates from Graduate Schools of Health Sciences of Dokuz Eylül, Atatürk and Celal Bayar Universities in Türkiye.

E-mail addresses of 104 graduates of PhD programmes between 1985 and 2010 were collected. A web-based questionnaire with 55 questions was forwarded to them and 52 (50%) responded. Thirty two of them were medical school graduates and 20 were from other fields of science. We used SPSS 11.0 for statistical analysis. Information about implementation of research, results achieved and the cause of possible hindrance of research were analyzed. There were 27 (51.9%) males and 25 (48.1%) females. It is demonstrated that approximately 41 (78.8%) gained academic positions in university medical departments, 5 (9.6%) worked for government hospitals, and 1 (1.9 %) entered private practice as clinical researcher. Graduates' positions included 12 professors, 21 associate professors, 9 assistant professors. Overall, 67.3% of graduates had obtained national funding as the main researcher in at least one project. Eight (15.3%) researchers indicated that they do not participate in clinical research, while 6 (11.5%) indicated that they do not participate in basic research. The majority of responders recognized the importance of personal motivation (94.2%), while 59.6% thought that finding the appropriate research area is important for research. The number of publications as the first author ranged from 0-27 and citations ranged from 0-850. Some type of mechanism to reward research activities was present in 36.5% of the institutions or hospitals. The biggest hindrance to medical research was the lack of personnel (65.4%) and lack of funding (57.7%) for research. As a conclusion, the majority of graduates of PhD programs in Türkiye are enrolled into academic researcher positions in universities. They keep producing funded research work and publish despite some problems.

**P51** **PHD QUALITY INDICATORS AT EGE UNIVERSITY, DEPARTMENT OF BIOENGINEERING, TURKEY**

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Higher education is in the center of economic and political development, and is indispensable for competitiveness in the global knowledge society. Ege University became a member of European Universities Association (EUA) in 2007 and has internalized quality assurance systems in accordance with the main objectives of Bologna process in the European Higher Education Area (EHEA). Through this process, Department of Bioengineering has adjusted its program structures, curricula, teaching and learning methods to ascertain its leading role in the Bioengineering-Biotechnology field and to reach global standards. The department has undergraduate and graduate programmes where 223 and 108 students are enrolled, respectively. One of the quality indicators for the department is its hands-on approach to education where every student is enrolled in practical laboratory courses. An undergraduate Diploma Project is also a pre-requisite for graduation where the students are involved in an on-going research project. Masters and PhD projects are identified in parallel to the needs of the Biotechnology industry in fundamental and applied areas. International and industrial relations is also another quality indicator. Industrial scientists are invited to participate in research collaborations, are engaged in co-lecturing new courses and to provide internships for students. Internationally, the Department has cooperation agreements for student and staff exchange with 14 European universities within the context with EU LLP/Erasmus programme. The Department has close relations with other undergraduate and graduate departments at Ege University. A total of 21 undergraduate students from 'Chemical and Food Engineering' programmes are enrolled at the Department for double major or minor degrees. It also coordinates a "multidisciplinary postgraduate programme in biotechnology" within the Graduate School of Ege University. Quality management and monitoring is also very important to provide sustainable quality standards. Feedbacks from academic staff, students and external stake holders are taking into consideration for sustainable quality management of the department.





**P52 AN OUTLOOK TO JOURNAL PUBLICATIONS FROM THESES OF MSc AND PhD STUDENTS AT DOKUZ EYLÜL UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES**

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Dokuz Eylül University Graduate School of Health Sciences was established in 1982 to coordinate MSc and PhD education programme in various fields related to medical and health sciences, according to the regulations of Turkish Higher Council of Education. The MSc and PhD programs aim to educate research scientists with a high level of quality and a strong sense of integrity. The students are also strongly encouraged to write journal publications from their theses. We investigated the total number of journal publications (published in SCI, SCI Expanded, SSCI and national peer-reviewed journals) from the theses of MSc and PhD students who graduated between the years 2005-2010. Total number of MSc students and PhD students graduated between 2005-2010 are 267 and 75, respectively. The number of journal publications from MSc theses are 31 and the number of journal publications from PhD theses are 47 between 2005-2010. The percentages of publication from MSc and PhD theses are 11.6% and 62.7%, respectively. The reason for the high percentage of publication from PhD theses might be the result of the PhD model. PhD students are asked to submit and receive an acceptance letter before graduation. As a conclusion, the PhD model at Dokuz Eylül University Graduate School of Health Sciences has strongly encouraged the students to publish their theses.

**P53 THE COMMON PROBLEMS IDENTIFIED FROM MULTIPLE PHD SUPERVISION WORKSHOPS**

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A number of PhD supervision workshops (seven) have been coordinated by Health Sciences Institute of Dokuz Eylül University between 2007- and 2010. The local and national workshops have had similar features regardless of location and the profession (i.e. health vs engineering).

The attendees of the workshops have been selected via their own institute; however their level of expertise varied. The advisors were randomly distributed into three subgroups with a constraining factor of inexperienced and experienced ones being evenly distributed. The other concern was not to let the same departments to remain in the same groups. The workshops were usually one full day (3 local ones were two days) with an initiation session of acquaintance which was followed by a session in which the problems were listed. Here three lists were formed for each sub-group; the problems of supervision due to students, due to advisors and thirdly due to system and administration. They were allowed to discuss approximately 20 to 30 min for each topic. The problems that have most commonly addressed include at the student level: the motivational problems of students; social factors; communication problems; career concerns (being held over the Project/study itself); at the supervisors level: supervisors lack of professionalism; the lack of availability of the supervisor; non-equal treatment amongst the students; at the system level: the lack of funds for congress and meetings (travel etc), extreme bureaucracy, the jury system problems; the calendar constraints. These sessions were followed by introductory lectures of international and national principles of PhD supervision, the flow charts (life cycle of) PhD education, the resources and resource management, conflict resolution etc. The workshops finalization was marked by the heavy discussion session of solutions for the problems indicated in the first session. The solution sets included the suggestion of providing better orientation for the students, continuous and frequent Monitorization (student and advisor), better follow up the experimental/study framework, acquisition and allocation of resources; better structured PhD administration at the institution level.

Accordingly the various groups with different backgrounds have raised a number of similar problem sets and solution sets. Therefore the PhD supervision has universal features which can be addressed and worked out via a similar approach.



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**PUBLICATIONS OF DISSERTATIONS AT FACULTY OF MEDICINE OSIJEK BETWEEN 2002 AND 2010  
(BEFORE ORPHEUS STANDARDS)**

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Introduction: Articles derived from PhD theses at Croatian faculties of medicine from 1990 to 1999 were published in Currents Contents (CC) journals in 6-24% of thesis. Similar data were found for French (17%), Spanish and even British medical schools. We checked international visibility of PhD thesis at our medical school before we accept ORPHEUS standards. Methods: PhD thesis defended at Faculty of Medicine Osijek (FMO) from 2002 to 2010 were collected from School database. We searched PubMed for related articles. Citation of articles and impact factor (IF) of journals was determined by ISI web of knowledge. Statistical analysis was performed using SPSS and Medcalc. Results: 84 thesis were defended at FMO between 2002-2010 (10 annually). CC articles (N=62) were found in 61% of thesis, thereof 2 articles in other indexed bases. 47% of articles were cited once and more times (n=42, 1-96). Total number of citations of those articles was 208. 77 cited articles were published after (81%) and 18 articles (19%) before the dissertation defense. The mean time needed for a publication of a cited article was 1 year after a doctoral thesis (-5 to 5 y). 33 articles generated from thesis did not have any citation (52%). Cited articles were published earlier, according to the ROC analysis, the year 2008 was the cut-off with AUC 0,846, p=0.001 then uncited articles. Cited articles were published in journals with higher IF (1.02, max. 6.52) than uncited articles (0.87, max. 4.0), statistically not significant. 20 articles (32 % of the cited articles) derived from thesis were never cited after publication. Conclusion: We presented an increment in the percentage of published articles derived from the thesis at the Faculty of Medicine Osijek in comparison with previously published data from Croatia Medical schools. Visibility of those publications measured by citations was relatively low

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**RECENT QUALITY DEVELOPMENTS IN THE BERGEN PhD PROGRAMME IN MEDICINE AND DENTISTRY**

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The PhD programme at the Faculty of Medicine and Dentistry, University of Bergen is an organised research training programme, aimed at researchers in the early stages of their academic careers. The programme is implemented as the third cycle of higher education within the Bologna process, and has been under continuous development since the programme was established in 2003.

The training component of the PhD programme is comprised of 30 ECTS credits, to be completed and approved before the thesis is submitted. PhD registration online every six months is combined with course and exam registration. This helps candidates to keep an overview of their PhD time period, leaves of absence and supervision agreements as well as their progress in the training component.

An Action Plan for Research Training was adopted by the University Board in 2008. The goals of the Action Plan are to decrease the average time from admission to thesis submission, to decrease the number of candidates who do not finish their research training, and to increase the number of candidates who finish on time.

Measures to reach these goals include more and better academic supervision and closer institutional follow-up. From 2008, the general rule is that two supervisors are appointed to new candidates, and in 2010 a course in PhD supervision was established. A midway evaluation, where the candidates present their work to an evaluation committee and receive constructive feedback and critical evaluation, has also been implemented as a supplement to the annual progress reports from candidates and supervisors. This is intended to give the departments a better overview of their candidates' progress and identify those who need extra follow-up or supervision and enable them to complete their PhDs on time.



**P56 LATEST DEVELOPMENTS IN THE PHD STUDIES REGULATIONS IN SPAIN WITH REFERENCE TO THE PHD QUALITY INDICATORS**

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The latest regulations of the Spanish PhD studies (*Real Decreto 99/201, BOE 10-2-2011*) aim to define the competences and abilities of the PhDs as essential protagonists in the research and knowledge transfer tasks of the Universities, linked to the country cultural and economic development, and within the frame of the European Space of Higher Education. Universities will be responsible for deciding the structures for the development of the PhD programs in connection with their research plans. PhD programs will be carried out in Doctoral Schools that will have their own administrative, management and strategic structure. Doctoral Schools will manage PhD, specific scientific Postgraduate and Research Programs in collaboration with other institutions such as Research Centers (public or private, national or foreign). Since research of quality is international, Doctoral Schools will promote international collaboration through agreements to incorporate teachers and students and to participate in PhD programs from foreign institutions. PhD programs will be evaluated every 6 years by the number of participating experienced researchers, research grants, recent publications and financial support for the PhD students. Moreover, the degree of internationalization of the PhD students will be assessed on the basis of the existence of research networks, participation of foreign students and teachers in PhD programs, degree of mobility, results from *co-tutelles*, European and international mentions, joint publications with foreign researchers, organization of international seminars. PhD will have an "International PhD Mention" provided a) the PhD student spends a minimum 3 months research stay in a foreign institution/research center b) a least the Summary/Conclusions of the Doctoral Thesis are written in a language for scientific communication c) the Thesis is evaluated at least by 2 experts from non Spanish University/research centers d) at least one expert from non Spanish University/research center participates in the Defense Board of the Thesis. Joint PhD programs through collaboration between Spanish and foreign High Education institutions will be evaluated and selected by the European Commission as Excellence Programs with the stamp of "Erasmus Mundus".

**P57 LISTEN TO THE STAKEHOLDERS! FOCUS GROUP INTERVIEWS WITH PH.D. STUDENTS, POST DOCS AND SUPERVISORS AS A MEANS TO QUALIFYING THE DISCUSSION ABOUT QUALITY INDICATORS**

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Some of the most important stakeholders in Ph.D. education are the Ph.D. students and their supervisors. Their insights into what constitutes a good Ph.D. program should be taken into consideration when Ph.D. quality indicators are defined.

We propose a simple yet effective model of systematically gathering and processing information about good Ph.D. education as seen from students', post docs' and supervisors' perspectives respectively. The model is based on the use of focus group interviews, which is a well-documented, relatively easy to use, and not too long-winded method often used in social studies and in educational research. Focus group interviews are well suited for identifying key concepts or focal points in the informants' views on the topic at hand, in this case the quality of a Ph.D. program. Hence the goal of conducting focus group interviews is not to conduct an opinion survey, but rather to pinpoint or highlight perspectives on Ph.D. education qualities that might otherwise be overlooked or disregarded. The description of the model is accompanied and illustrated by a short summary of focus group interviews with Ph.D. students, post docs and supervisors from the Ph.D. School at The Faculty of Health Sciences, University of Southern Denmark.

It is suggested that Ph.D. students', post docs' and supervisors' views on good Ph.D. education may contribute positively to the ongoing discussion and prioritizing of Ph.D. quality indicators. Obviously, this approach should be seen as a supplement – not an alternative - to the use of outcomes oriented measures such as bibliometrics and analysis of post docs' research careers.



**P58** **IMPORTANCE OF MONITORING THE PROCESSES FOR MEASURING AND ASSESSING THE QUALITY OF GRADUATE EDUCATION**

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Graduate education requires flexible and dynamic administration that is also the nature of the R&D studies. Compared to "ready-to-wear" bachelor's degree programs, graduate programs are "tailor-made" and require individual follow-up. PhD education is composed of two parts, taught courses and thesis work. All students should pass the qualifying exam before starting the thesis work. Application and admission processes are also diverse and depend on the program as well as the departmental culture. A PhD student is required to complete his/her thesis work in 4 semesters, and get the approval from the steering committee twice a year during the that period. When these individual steps are taken into consideration, there is a clear need for an information system in order to follow up the education processes. Such a system will allow the administration not only to follow the student progression at micro level, but also to monitor and scale all-university graduate education activities at macro level. This study asked the question whether the data mining techniques could be useful to predict the global graduate school outcome. A data mining model was build to answer the following questions on success patterns: (1) Can student achievement be predicted and can prospective graduation date be attributed to individual students, (2) Which attributes are important for predicting the student achievement, (3) Which types of students mostly receive research assistantship position, (4) Is there any way of classifying students across different disciplines, (5) Does department success correlate with the number of faculty, (6) Which attributes of the faculty are relevant in determining the success of the department? A model, based on classification algorithms was built and data mining techniques were used to elucidate the responses to aforementioned questions. The results show that the model was useful in analyzing the outcome of existing practices and providing answers for detecting possible failures in advance with 92% accuracy. These probabilistic models could be useful in the preparation of strategic plans of the graduate institutions.

**P59** **IMPRESSION OF PhD QUALITY INDICATORS OF THE SCHOOL FOR NUTRITION, TOXICOLOGY AND METABOLISM IN MAASTRICHT, THE NETHERLANDS**

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Training and educational programs to become a researcher in a (bio)medical field vary widely in length and quality. Due to the increase in the number of research and doctoral programs over the last decades, it is important to monitor quality and investigate standards, indicators and general criteria. The goal of sharing my personal perspective is therefore to describe local guidelines and indicators of quality, which might have general applicability and therefore be of benefit to other institutions. This descriptive pilot study is performed, based on previous research of quality indicators of doctoral education and satisfaction of employees in general, combined with information from consultation of experts in our institute and personal experience. The PhD School for Nutrition, Toxicology and Metabolism of the Faculty of Health, Medicine and Life Sciences of the Maastricht University Medical Centre will be analyzed and discussed. Important parameters are among others: the approval of an educational plan by a committee of experts, student and supervisor evaluation on a structural basis, continuity of the project, the presence of a trust person and PhD council, and the possibility for students to participate in general courses relevant to their PhD training (e.g. scientific writing, statistics, presentation techniques). Despite these quality indicators, a network of highly esteemed scientists remains an important determining factor for scientific success. Satisfaction of employees is subjective, but related to factors such as adequate and accurate supply of information, trust in and accessibility to their supervisor(s), communication on clarity, feasibility of goals, cooperation within their department, flexibility in working hours, and opportunities for personal feedback and development. This descriptive study shows quality indicators of the PhD School for Nutrition, Toxicology and Metabolism in Maastricht. Overall, the main quality indicators are good communication, smooth cooperation and the possibility to participate in courses. Adequacy of the PhD training programs appears to rely on the availability of modular training programs. Scientific quality is mainly determined by the presence of accessible and inspiring high level scientists and tutors guiding the research programs. National and international communication is needed to develop guidelines to measure and assess the quality of PhD educations. In order to improve education and to establish general standards, a comparison with other institutions may be of value.



P60

QUALITY INDICATORS OF PhD PROGRAM IN MEDICINE AND PHARMACY AT THE UNIVERSITY OF LATVIA

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Latvia is gradually changing its PhD program in medicine and pharmacy to focus more on innovative research. It is realized by including in the curriculum of doctoral studies additional educational courses and enhancing the collaboration with specialists in fields of molecular biology, genetics, chemistry and medical physics. The PhD study program consists of 144 credit points of which 100 gives the preparation of the thesis. The remaining 44 points are earned by further education. To deepen the knowledge in specialty PhD student is obliged to teach undergraduate students at least one semester. After this PhD student has to pass examination in his specialty that is evaluated by mark in 10 point system. Besides it PhD student is offered courses in different other fields of knowledge of which two are mandatory: "scientific analysis of data" and "advanced methods in biomedical research". By graduating each course student have to write an essay that is evaluated in 10 point system. In addition we have organized the doctoral school which may attend both doctoral and undergraduate students. Curriculum of the course covers different research topics not only in medicine, but in such fields as chemistry, medical physics, pharmaceutical industry etc. Lectures are given by most prominent specialists of our country and invited foreign lecturers. Thus both doctoral students and undergraduate students get an insight into the research that is going on in other fields of science. Undergraduate students have an opportunity to visit research laboratories, to see how the research is made and decide whether this could be the way in their future life.

P61

CREATING AN INTERNATIONAL QUALITY INDICATOR SYSTEM FOR ASSESSING THE PhD TRAINING COURSE AND REDUCE INTERNATIONAL EDUCATIONAL GAP BETWEEN COUNTRIES

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Many industrialized countries and developing third world countries have conducted the different PhD training courses. The resources instrumentation and national strategic goals determine and design with PhD courses in each country. These courses instruct trainees in all regions. But ultimately do not have any document for standard educational content. In many developed countries the availability of funds, scientific and approved research is very important while in some countries graduations are faced with many differences in laboratory techniques or common protocols. Some indicators to assess the quality of standard education is necessary for along with expanding and developing new technologies with increasing the fund needs to training of a PhD. With this assessment, standard education can decrease the competition between countries for evaluation of better PhD training.

For international evaluation of some courses there are some international assessment systems. USMLE (United States Medical Licensing Examination) is the best exam in medical education. The same assessments exist for teaching of English (e.g. TOEFL), to evaluate the volunteers graduation. Another well known example is Microsoft Certified Professional (MCP) exams. MCP is a program of Professional certifications awarded by Microsoft. Individual certifications are awarded upon passing of one or more exams. The MCP program itself is designed for both IT professionals and developers. Beneath the MCP program is a variety of more targeted and focused certifications. It seems that such certification or evaluation systems with standard indicators is necessary for assessing the quality of different PhD training courses. This type of assessment will be good tools for standardization of education at least for some fields such as basic sciences, engineering, and some others. The scientific societies can collect and edit standard indicators for this evaluation and assessment can be implemented only for volunteers with international certification.



**P62 PERCEPTIONS OF GRADUATE STUDENTS FOR SERVICE QUALITY IN THE INSTITUTE OF HEALTH SCIENCES OF DOKUZ EYLUL UNIVERSITY**

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In any quality improvement program, analysis of factors affecting service quality play a necessary role for progressing plans to elevate quality. Despite recent research on general services quality dimensions, there is a little study focused on higher education specialized on the health science training. This study aimed to measure service quality in the Institute of Health Science of the Dokuz Eylul University. A structured-questionnaire was applied to the MSc and PhD students educating in the institute. 116 questionnaires were distributed and approximately 93% returned. Results show that the scales are both valid and reliable. According to factor analyze, service quality has two dimensions; organizational structure and systematical structure. In order to analysis the relationship between dimensions of service quality, correlation coefficient values were calculated. There is a positive and strong relationship between dimensions. Regression result shows that the most important factor was organizational structure in the service quality of Institute of Health Science.

**P63 EXPECTATIONS OF GRADUATE STUDENTS FROM SUPERVISORS AND THE SYSTEM IN TURKEY**

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A detailed survey has been done among the students of Dokuz Eylul University the Graduate School of Natural and Applied Sciences in the academic year of 2009-2010, 5 questions have been asked and their answers have been evaluated systematically. 111 over 1500 individuals participated to this survey. The main aim of this initiative is to come to light some curious things about the graduate education in the institute. These can be categorized into three:

- 1) The relation with supervisor
- 2) Research infrastructure and atmosphere in the departments
- 3) Problems with the system (including financial and administrative issues)

Obtained results from this survey have a certain potential to form a new system for the graduate education. According to the students, the relation and responsibilities between student and supervisor should be revised with a contractual sight, infrastructure and the financial support tools should be improvement, etc. The existing problems related with supervisors, departments and the whole system and the expectations of the students will be given shortly in this study by introducing a general view of the other studies on this subject.

**P64 "PHD STUDY AND PROGRAM: FROM EX-STUDENT TO STUDENT- LESSONS LEARNED": A PhD COURSE PROPOSAL**

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The Postgraduate Doctoral Study in Biomedicine and Health Sciences at the Medical Faculty of Osijek is established five years ago. The purpose of this PhD study is to qualify the student for independent scientific, research and academic work at university, scientific and health institutes as well as at university hospitals. According to the experience of PhD students, that PhD program has it's 'childhood diseases' and some of them, like pressure of Clinics and Academia 'hungry' for PhDs on Institution providing PhD program, PhD students not really interested in research and lack of devoted supervisors/mentors, are identified and discussed. We find that institutional effort on overcoming common PhD students' pitfalls should be made and the introduction of a course about PhD study would improve quality of PhD program. For that reason, an outline of the PhD course about PhD study and program is presented. We project that presented course would lead to improved PhD



program and, if not more satisfied, than at least more prepared PhD candidates. In many instances knowing what to expect is impossible, however, other lessons can be taught ahead.

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#### THE BASIC ONCOLOGY DOCTORAL DEGREE PROGRAM OF DOKUZ EYLUL UNIVERSITY

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Dokuz Eylul University Institute of Oncology was established in 1992. It is one of the three Oncology Institutes in Turkey, and it is the only Oncology Institute in Aegean region. The Institute has three departments which are Basic Oncology, Clinical Oncology and Preventive Oncology.

Basic oncology is a multidisciplinary field in medicine that provides the necessary translational perspective between the basic sciences and clinical sciences. The Institute of Oncology has Master's and Doctoral degree programs on Basic Oncology. These programmes are validated by the Institute of Health Sciences. There are 6 students who are registered to the Basic Oncology PhD program and 5 students who are registered to the Basic Oncology MSc program currently. The eligibility criteria to apply for Basic Oncology PhD program are, to be a medical doctor or a specialist on Basic Sciences or to have a Doctoral Degree or to be graduated from Basic Oncology MSc Program. Those who meet these conditions can apply to a PhD thesis project which is published on the Institute of Health Sciences web site under the title of Basic Oncology PhD Program with its executive supervisor. The Basic Oncology PhD program consists of 4 years. The program's first 2 years gives lectures covering the knowledge about medical and molecular basis of cancer, techniques of health research including advanced methods of analysis. The students take the lectures for credits in a range between 21 to 30 under the supervision of their advisors.

After completing the lectures' periods, the students should take the proficiency exam which is composed of written and oral parts. For graduation, lectures and thesis periods should be completed successfully and the article of thesis must be accepted to a SCI or SCI/Expanded journal.

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#### THE CRITICS OF THE STUDENTS ABOUT PhD EDUCATION IN ESKISEHIR OSMANGAZI UNIVERSITY

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In our study, the students of our institute were divided to groups accordingly age, sex and their branch of education. We wanted to know what they think about their lessons, teachers and physical conditions. In addition to, we investigated whether their education is suitable for their expectations and useful for their working life. We analyzed the number of the declared programme and applications between 2001 and 2011. We applied them a questionnaire. The answers about the questionnaire we made were classified and analyzed statistically. The most of students are female between ages 25-30. The common reasons of preferring the programme is to make a carrier and suitable for their capacities and abilities. Other factors are to find a job easily and better opportunities. The most of students think that their education is suitable for their expectations, prepare them to working life, increase their abilities and scientific levels. They said that they are pleased with their advisors. Additionally, they think that the physical conditions of our laboratories are better, our institute have good conditions to compare with other universities in Turkey, and their knowledge is not enough about foreign universities to compare us with foreign universities. Consequently, the female students preferred to PhD programmes more than male students and they are hopeful about their future. They are pleased to the qualification of their education.

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#### STUDENTS' PERSPECTIVES ON THEIR DOCTORAL EDUCATION

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This study aims to evaluate doctoral nursing education by doctoral students' perspectives and to give a direction to doctoral nursing education for the future. This study was planned as descriptive to determine about students' opinions of the doctorate programs on nursing. To achieve this goal all doctoral students (n=66), who are voluntarily (n=53), in all doctoral education programs of the university are questioned via a questionnaire. The questionnaire consists both open-ended and close-ended questions. Formal permission for study was taken from the university. Statistical analysis was performed with the SPSS programme (16.0) and data evaluated as percentage and mean. The average age of the doctoral students was



30±5.01, 52.8% single. 84.9% proportion of the participants after bachelor's degree had occupational experience as nurse and most of them (55.2%) had 1-24 months experience. When we look at some ideas about their doctorate programs, participants stated that "Courses contents meet the expectations from doctoral education" (52.8%), "Courses also include actual information relating to issues" (73.6%), "Teaching methods of courses facilitated me to understand the lessons" (41.5%), "Number of credits in Doctoral training program are sufficient" (86.8 %), "Doctoral courses phase provides/will provide background for my thesis studies" (50.9%), "Doctoral courses phase provides/will provide adequate practical background for my thesis studies constitute/ old opinions formed" (54.7%). However, the majority of participants (54.7%) believed that doctoral course phase didn't provide/wouldn't provide adequate statistical background for their thesis studies. Although some students expressed some deficiency, mostly they had positive opinions about their doctoral education programs. Also, further research is needed to explore doctoral students' perspectives on doctoral nursing education in different universal and international foundations. This type of research should be a guide and also can be used as quality criteria for doctoral nursing education.

**P68 STUDENT'S EVALUATION OF THE QUALITY OF PHD EDUCATION AT MEDICAL FACULTIES OF CHARLES UNIVERSITY**

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Student's evaluation of the teaching process at universities should be essential part of the continuous effort to increase and assure quality in the higher education. The vast majority of these evaluation studies are focused on pre-graduate level. There are only few reports dealing with the postgraduate (doctorate or the 3<sup>rd</sup> level). And only very few from these are focusing on PhD study programmes in medicine. At the Charles University there have been organised regular evaluations covering all faculties and all study programmes since 2004. Data from these studies are very important, because they help to identify specific aspects of PhD study in biomedicine. We will present selected interesting results from recent survey (2010) analysing responses of 392 students. Data from these whole university studies are not focused and thus they could not really answer specific questions dealing with PhD study at our Faculty of Medicine. Therefore we have conducted every year evaluation among our PhD students. In our presentation we will report about successful story which helps us to identify and solve problems in teaching statistical methods. With the help of student's evaluation we identified basic problems and during 2 years we have been able to improve the whole system.

In conclusion: based on our experience we believe that student's evaluation of education programme should be performed at regular intervals and it should be organised both at university level (independently of particular faculty and study programmes) and at the faculty level. This survey could be used for monitoring quality and comparing different programmes. Equally important are evaluations at the level of the particular school, this survey could be very detailed and focused on specific areas. Both these evaluation activities are essential components of quality monitoring of PhD study programmes and have to be further developed. Students should have the opportunity to contribute to the Quality Assurance of the education process and academic institutions should activate mechanisms to collect, analyse and respond to feedback from students and graduates.

**P69 POSTGRADUATE EDUCATION PROGRAMMES IN DOKUZ EYLUL UNIVERSITY SCHOOL OF PHYSICAL THERAPY AND REHABILITATION**

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Dokuz Eylül University School of Physical Therapy and Rehabilitation (DEU SPTR) was founded on July 3<sup>rd</sup>, 1992 according to the law with no of 3887, and started undergraduate education with 32 students in Balçova district as the first physical therapy school in Aegean region and the third one in Turkey. MSc (since 1993) and PhD (since 1996) education are running under Health Sciences Institute. The MSc programmes last two years and the PhD programmes last four years. The programme consists of formal courses and individual research work for the doctoral thesis. There are three core study fields (Physical Therapy and Rehabilitation, Neurological Rehabilitation, Musculoskeletal Rehabilitation) in MSc programme. In this year, new MSc programmes (Geriatric Physiotherapy, Orthopaedic Physiotherapy and **PROSTHETICS – ORTHOTICS**) has opened. It is expected that new programmes will enhance the both theoretical and practical quality of education in physiotherapy field. There is only one PhD programme, called "Physical Therapy and Rehabilitation Doctorate Programme". Total of 134 postgraduate students have been graduated from MSc (106 students) and PhD (28 students) programmes, of whom 107 (79.86%) were females and 27 (20.14 %) were males. Student mobility programme have begun under ERASMUS





scheme since 2001. International cooperation is mostly carried out through the Coehre and ENPHE. In order to ensure the consistent quality of its provision of education and treatment services related to physiotherapy, prosthesis, orthosis application and rehabilitation, DEU SPTR complies with the ISO 9001:2008 quality management system (approved by ISOQAR in April 2010). Our Quality Policy is; aiming at constant development and dynamic endeavour, increasing student, staff and patient satisfaction level to the highest rank by achieving well-qualified applications in global standards of educating and training facilities, staff responsibilities and health care services.

**P70 THE PhD PROGRAM IN DEPARTMENT OF MEDICAL BIOCHEMISTRY INSTITUTE OF HEALTH SCIENCES DOKUZ EYLUL UNIVERSITY**

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Dokuz Eylül University Department of Medical Biochemistry was established in 1982. There are 18 faculty members including 12 professors, 3 associate professors and 3 assistant professors. Some of the selected research areas of interest are: Quantification of proteins and small molecules by multiple reaction monitoring, tandem mass spectrometries, oxidative stress, oxidative DNA damage and its relation to diseases, diabetes mellitus, apoptosis, inherited metabolic diseases, matrix metalloproteinases and extra-cellular matrix. In 2010-2011 spring academic term, there is a total of 8 graduate students: 3 master of science (MSc), and 5 PhD students, and also there are 11 residents undergoing education. 5 master and 12 doctoral courses are given in the graduate program.

The aim of PhD program is to gain the students the ability of analyzing and criticizing the scientific events with a wide and in-depth perspective, as well as making advanced research as an independent scientist. PhD candidates apply to the program subsequent to choosing their projects proposed by their advisors. Upon completion of the written and oral examinations, successful candidates will have the chance to enrol the PhD program. PhD students are required to complete at least 21 credit lectures until the end of second year, to present the progress of her/his research proposal to the "thesis advisory committee" every semester and to TAKE the PROFICIENCY EXAM by the end of the fourth semester. Once the "thesis advisory committee" determines that the research work is complete, the student writes and defends the thesis. PhD thesis must be completed in 8 semesters. Prior to thesis presentation at least one research paper should be submitted for publication to a SCI-Expanded journal. In the present study, the different aspects of doctoral model in the Department of Medical Biochemistry are discussed. Also, the graduate students' opinions about doctorate education were evaluated.

**P71 GRADUATE STUDENTS OF HEALTH SCIENCES EXPERIENCE SIGNIFICANT TROUBLES IN TURKEY**

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The improvement of innovative applications in life sciences is one of the chapters taking place in the State Strategic Plan. Planning human resources for this purpose accompanies PhD education in life sciences. To understand the consistency between the plan objectives and the applications followed, we ran a student satisfaction survey in public graduate schools. To this end, we collected the answers to a set of questions asked of the graduate students in health sciences and analysed them. The results have shown that the positioning of students in three main sections significantly interfere with graduate education systematic: (1) graduate students particularly who are attached to medical schools do not receive any payment for their work, which is illegal; hence they live in poverty; (2) students live in fear of being treated and to be future treated as laboratory technicians if they pursue a career in medical institutions; (3) students compare their program and research infrastructure with that of national and international precedents and feel being educated unfairly. These results reflect that the work force produced by these PhD programs is not adequate for dealing with the reproduction of the goals of the State Strategic Plan. In conclusion, PhD education in health sciences in Turkey needs to be resurveyed with more rational approaches to arrive at the initially planned goals.

**P72 THE PERSPECTIVES OF THE BACHELOR HEALTH SCIENCES STUDENTS ABOUT POST-GRADUATE EDUCATION**

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6<sup>th</sup> ORPHEUS Conference in the Dokuz Eylül University  
ABSTRACT BOOK  
STUDENT PERSPECTIVE



**Introduction:** Education in health sciences has been highly important for professional adequacy. Lifelong learning has been focused lately in this issue. Post graduate education is the main origin of lifelong learning.

**Objective:** The aim of this study was to assess the perspectives of the health sciences students about post graduate education.

**Methods:** Two hundred bachelor students' of health sciences schools which include physiotherapy and rehabilitation, nursing, midwifery, and child development departments were attended. In order to assess the information of the students specifically designed "perspectives questionnaire" was used. The questionnaire was composed of 28 multiple choice items about post-graduate education and its contributions to professional adequacy. The descriptive and frequency analyses of the answers were analyzed with SPSS program, version 13.

**Results:** One hundred and twelve (56%) of the students declared that they had insufficient information about overall post-graduate education. Only 35% of bachelor students indicated that they want to participate in doctoral education in the future. Half of the students did not know the duration of doctorate education. Beside these, 148 (77%) students noted that they do not know the scope of this sort of education. Foreign language knowledge of the students was also very poor that only 1.5% of them have sufficient English. The advantages of post-graduate training were thought as the state of employment (88.5%), improvement in income (92%). 62% of the students were not aware of the procedure of getting an academic title and its relation to post-graduate education. 84 (42%) of the students did not know if their university had a post-graduate education or not. The students source of information was academicians (34%) and their friends (33,5%).

**Conclusion:** It seems that the knowledge of bachelor students about post-graduate education is very poor. It may be appropriate to bring about awareness about this issue in the very beginning of the bachelor education to achieve a qualified academic lifelong learning period.

**P73 EDUCATIONAL VIEWS AND OPINIONS OF MSc AND PhD STUDENTS ABOUT THE MOLECULAR MEDICINE PROGRAMME AT THE UNIVERSITY OF DOKUZ EYLUL UNIVERSITY**

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Molecular medicine (MM) is a branch makes bridge to full gap between basic science and clinical research. Starting from September 2009, training in MM has started at Dokuz Eylul University (DEU) Graduate School of Health Sciences in both MSc and PhD programmes. The aim of this research is determine of the opinion of MSc and PhD students enrolled in the MM program at the DEU about their education and educational services. This study was designed as a qualitative research involving 14 MSc and PhD students enrolled in the MM program at the DEU. Two of the 14 students were in the research team. All 12 remaining students enrolled in the program in the spring of 2011 were invited to participate in the study. The research was designed in the two steps. In the first step, 5 students were selected to share opinion in the focus group. Using the result of focus group the researchers made semi structured questions for the second step involving in depth interview covering students' views about their program. In-depth interview was applied on the two students. All meetings and focus group conversations were recorded by a recorder device. In the data analysis phase, all meetings were deciphered and a phenomenological analysis, carried out. In general, students were satisfied from their program, as well as from the student services of the Graduate School of Health Sciences especially from institute. Summarizing the result of research using the quote from a student:

"In my opinion for our branch the best thing is its multidisciplinary system. We can work with every professor we wish and we can ask everything we want. It is an advantage for me but there is some deficiency in structured courses because it is a young programme".

**P74 DIFFERENCES IN POSTGRADUATE EDUCATION IN HEALTH SCIENCES IN THE EYES OF A MASTER'S STUDENT**

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**OBJECTIVE:** To compare the postgraduate education given in Türkiye, U.K., U.S.A. and Germany and establish the differences that would enable us to improve the postgraduate education.



Faculty members of Celal Bayar University who completed their doctoral studies in the USA, UK and Germany were interviewed and their experiences were compared to those of faculty members who had their doctoral studies in Türkiye.

In contrast to the postgraduate education in Türkiye, supervisors in the USA, UK and Germany focus on a more specific subject. Therefore, they have not only gained more experience but also the knowledge that is integral to publications. Supervisors in these countries seem to be more vigilant when recommending/deciding the topic of research, capable of asking and leading the students to ask more specific questions. There are competitive postgraduate programs which students are required to take classes and pass examinations in the course of their education as opposed to postgraduate programs without the requisite of taking any classes. Students enrolled in such programs do not necessarily acquire theoretical information on all related subjects but they can concentrate on their subjects and be more productive.

Production and efficiency will inadvertently increase as specialization in education becomes more prevalent. Hence, it is imperative that the faculty members pursue research in specific fields and pass on their knowledge and experience to their students. This emerges as the most important shortcoming of doctoral education in Türkiye. Rectifying this shortcoming requires adaptation and implementation of the processes, strategies and policies in foreign postgraduate education to domestic education programs and to raise the awareness of the faculty members.

**P75 PHD EDUCATION SHOULD BE A “MUST” TO BECOME A FACULTY IN MEDICINE ACCORDING TO TURKISH PHYSICIANS**

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Having PhD degree is not common among Turkish Physicians and the syllabus in physician education does not include standard research training such as biostatistics, thesis writing or designing a project. Some of these physicians become faculty in Turkish Universities and usually learn these facilities by themselves. There are a few numbers of physicians working as faculty in Turkish universities who have PhD degree. The researchers in this research tried to reach this population and asked their point of view about the influence of their PhD education in the field of the area which they were currently in. An open ended question form was used to evaluate the current approach of these physicians. Most of them had their education in USA, Europe and Turkey and the field of the PhD educations were in biosciences. They were all agree in PhD education improved the quality of their researches. The Physicians, who had their PhD education in Turkey, sustained their education part time because they needed to afford their daily expenses. They were not able to get scholarships because of their high age after becoming physicians. The major problem for the physicians who had their PhD education out of Turkey was the conditions of Turkish Universities that it had taken some time to arrange laboratories to work in. To solve these problems they suggested that School of Medicines in Turkey is needed to generate MD/PhD joint program. Even though the hard conditions to have this degree, these physicians pointed out that in Turkey PhD education should be a “must” to become a faculty in medicine.

**P76 A GOOD PhD PROGRAM = A HIGH QUALITY RESEARCHER**

**Dr. Dorina Rama**

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The advance made in technology has provided many advantages and facilities to the field of research in health sciences. What remains to be improved is the good education on how to use such technology in order to make new findings. This education is provided by universities in different levels: the graduate program, the MSc and finally the PhD program which aims to provide researchers with the philosophy of the specific research area. It is important for this education to be international and to give rise to high quality researchers.

The Department of Basic Oncology in Hacettepe University deals with advanced research in cancer biology and immunology and contributes to the training of new investigators with its masters and doctorate programs. The mission is to produce original knowledge with universal impact for the elucidation of biological and immunological basis of cancer. The PhD program with its obligatory and elective courses offers theoretical information and experimental skills in order to equip the student with the ability to produce original ideas. The mentorship which is especially critical for the thesis period is provided by frequent meetings with the students individually or in groups where the project's progress and new ideas are discussed.

In order to integrate the clinical knowledge with the basic research Hacettepe University has also started for the first time



in Turkey an MD-PhD program. Students of Hacettepe Medical Faculty qualified for Tumor Biology and Immunology M.D. – Ph.D. Integrated Program are meant to complete required courses under Tumor Biology and Immunology Ph.D. Program, apart from the formal education programs. Following the graduation from medical school, they commence the thesis studies and receive the title of Doctor of Science at the end of two years.

It is important for a researcher to be international by exchanging knowledge and experience with their colleagues around the world and that is why our department has also arranged different internships for the young doctorate students in USA and European research laboratories.

**P77 AN OUTLOOK TO POSTGRADUATE EDUCATION AT ANKARA UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES**

**Seyit Can GÜLOĞLU**

*PhD Student and Student Representative of Ankara University Graduate School of Health Sciences*

Ankara University Graduate School of Health Sciences was established in accordance to the provisions of the number 2547, Higher Education Act. The school is still conducting and coordinating the postgraduate education at Dentistry, Pharmacy, Medicine, Veterinary Medicine, Health Sciences, Physical Education and Sports, Nursing and Forensic Medicine, Clinical Pharmacy, Social Psychiatry, Neurosciences disciplines since 1982.

Ankara University Graduate School of Health Sciences adopts scientific vision to their students at every area of life such as free-thinking, discussing, researching and questioning according to ethical values and has been working to improve the level of contribution to science with the aim of accreditation of postgraduate teaching in the field of health sciences modern countries since its foundation. At Ankara University Graduate School of Health Sciences postgraduate education continuing at 65 departments as 135 master and 60 doctoral programs which are engages with 532 instructors. Since the beginning of education, 1421 students have gained their master degree and 1502 students have gained their doctoral degree and also currently 950 postgraduate students still continues their education (data according to March 2010).

This study shows the distribution of PhD students and the research assistants according to programmes and also juristic status of the research assistants within the data of the Ankara University Graduate School of Health Sciences.

**P78 COMPARISON OF THE CURRICULA OF THE MOLECULAR MEDICINE MASTERS PROGRAM**

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Molecular medicine is a multidisciplinary field of science which interests in formation, development, prevention of diseases and elucidation cellular and molecular mechanisms of diagnosis and therapies of disease, and provide a basis to translational researches in this field. MSc and PhD program of Molecular medicine as an education program aims to investigate thoroughly with holistic perspective and multidisciplinary percept of basic molecular and cellular mechanisms of health and diseases. Although there are only two universities which give MSc and PhD education in the field of Molecular Medicine in Turkey, there are numbers of these programs in the worldwide especially in USA and Europe. In this research the syllabus of Molecular Medicine in Turkey and in the worldwide has compared and the novel orientation in this field has revealed. Most of the programs in the worldwide aim to provide postgraduate students with backgrounds in either basic science, medicine, dentistry or veterinary science with an advanced academic and laboratory research training in modern cellular and molecular medicine, with emphasis on the interface between the basic and clinical aspects of the subject same as the programs in Turkey. All of them provide training in laboratory and research skills. MSc Programs last 2 years in average and the thesis is essential in all of the programs. Courses differ slightly according to the universities research interest. The most popular courses are Molecular Immunology, Molecular Genetics, Molecular Oncology, Cellular Biology and Cell Signaling and Nanomedicine. In Turkey, the courses mostly include basics of these subjects and the molecular aspects are mostly at the Molecular Medicine PhD program.

**P79 PROBLEMS OF DOCTORAL EDUCATION IN A FOREIGN COUNTRY**

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In recent years doctoral education and training have become part of the focus and scrutiny of policy formation. Doctoral studies are among the most advanced and specialized forms of education and training available in modern societies. The purpose of training can be defined in terms of providing society with the capacity for carrying out high quality research, and of producing highly-qualified graduates with options to engage in their chosen careers with the skills acquired during education and training through research. In both respects, social and individual requirements are on the process of changing. The analyses and findings are put forward to encourage discussions about different approaches to collaborative doctoral education, in general and to highlight good practices, the common problems and some solutions towards solving them, in particular. In this research 45 PhD students have participated (22 male and 23 female). These students were Iranians studying in three different universities of capital of Turkey, Ankara. Their age varies from 25 to 35. They have been asked some questions related to problems that a PhD student may involve during studying PhD program in Turkey. The findings demonstrated that students encounter a variety of problems in parallel to accomplishing their milestones in PhD program and had some helpful suggestions to avoid some of the common problem. We have also asked about their graduation year and their major and above all why they have chosen Turkey for studying PhD. The answers to the questions show the problems from different points of view. The students also gave some suggestions that they think may be useful and can help them with their studies.

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#### THE PROFILE OF MEDICAL NURSING DOCTORAL PROGRAMME IN TURKEY

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Cicek Fadiloglu\*\*\*\* (Prof. Dr.)

\* Adnan Menderes University, \*\*Osmangazi University, \*\*\*Dokuz Eylül University, \*\*\*\*Ege University

The aim of the PhD degree of the Medical Nursing Programme is to prepare nurses at highest level of nursing science to conduct research that advances the empirical and theoretical foundations of Medical Nursing. For this aim, Medical Nursing Doctoral degrees are given at 8 universities in our country.

Medical Nursing Practice is common compulsory lesson all universities. Theory and Philosophy in Nursing and Research in Nursing, one of the main lessons of Nursing Doctoral programmes has been carried on as a selective lesson. Among the other selective lessons are Geriatric Nursing, Neurology Nursing, Endocrine Nursing and Cardiology Nursing, Nephrology, Intensive Care Unit Nursing, Health Sociology, Medical Ethics, Qualitatif Researches and Methodology. Oncology Nursing, Rehabilitation Nursing and Home Care lessons are carried compulsory in some of the universities. The number of credits per term is between 20 and 33 in programmes.

Standardization is not supplied in terms of credit number and compulsory lessons among the Medical Nursing Doctoral programmes.

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#### THE PhD EDUCATION FROM THE STUDENT'S VIEWPOINT

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**Objectives:** The PhD education in dentistry faculties is not a charming program because of lasting at least 5 years. In addition to this disadvantage, the education indicates full time work hours and during the education the students can not get salary. However, after the license education, many graduated dentistry students make applications to the dentistry faculties. The department choice in dentistry Phd education belongs to the employment possibility after the education programmes as well as the dentist's relevance and ability. The purpose of this study is to investigate the regard of the Phd students on their Phd programmes and the employment after the education.

**Methods:** 40 Phd students in Erciyes University Dentistry faculty were subjected to our survey which consists of 13 questions. The identities of the participants were not asked. After filling all the surveys the descriptive statistics were made by using statistical software.

**Results:** 45% of the Phd students who completed the survey considered the Phd education as a step for academic life by result of the statistical findings. In addition 62 % of the participants satisfy with the relationship with their advisor and 35% think better relations need to be established in the education life. According to the statistical findings; more than the half of the Phd students (52.5%) stated that, their thoughts in the first year of Phd education have been changed till now negatively.

**Conclusion:** According to the results, the PhD education in dentistry is still seen necessary for experting even though it is so demanding.



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DOKUZ EYLUL UNIVERSITY SCHOOL OF NURSING PHD STUDENTS

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In Turkey, the profession of nursing has shown important improvements in the fields of research, education and practise. Dokuz Eylül University, School of Nursing is one of the leaders of this process. The School of Nursing has the role of leadership in this field with its vision regarding nursing education and its approach of Problem Based Learning.in the nursing education programme. This study has been carried out to clarify the overall situation concerning PhD education at Dokuz E. University, School of Nursing between 2005-2011.This is a defining type study. Its purpose is to show the starting date of the PhD programme and the departments, the number of attending students according to the departments, the number of PhD students that graduated, the years when the students graduated as well as thesis topics and relevant publications. All the data has been researched from the data base of graduate School of Health Sciences. To carry out the study, permission was taken from the institution. Information which couldn't be researched from School of Health Sciences, has been obtained from the PhD students via email. DEU School of Nursing started its PhD programme with 6 students in the 2005-2006 education year. The first departments which started their PhD programme are; psychiatric nursing department, Child and disease nursing department, gynecology and obstetric nursing department. Currently PhD programmes are carried out in 7 departments and the number of PhD students for 2010-2011 education year is, 4 in psychiatric nursing department, 1 in Child and disease nursing department, 3 in gynecology and obstetric nursing department, 7 in Surgical Nursing department, 3 in Internal Medicine Nursing Department, 4 in Public Health Nursing Department and 1 in Nursing Management Department. School of Nursing had its first PhD graduates in 2009. The number of attending PhD students at the moment is 23. The graduate students' number of domestic publications is 10 and the number of external and under SCI publications is 12. Situation detection studies are useful in terms of demonstrating universities' PhD education profile. For this reason, further studies should be made to improve the quality of universities' PhD education.

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A CRITICAL VIEW OF THE DOCTORAL PROGRAM OF SURGICAL DISEASES NURSING FROM THE ASPECT OF STUDENTS

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*Supervisors: Dicle A., Karayurt Ö., Bilik Ö.*

*Dokuz Eylul University, School of Nursing, Surgical Nursing Department*

**Objective:** Determining the student perceptions and opinions regarding the doctoral program of Surgical Diseases Nursing of Dokuz Eylül University, Institute of Medical Sciences. **Method:** Personal opinions were obtained from the doctoral students in six fields with the open-ended questionnaire form and they were analysed. Concerning the students, being instructional and in the same program is a limitedness. **Findings:** Findings were presented under the related fields. **Research:** The gains of the students are; the development of the skills of acquiring the research philosophy, developing the research information, reading the article in a critical way, accessing to the resources, making independent research. On the other hand, the negative aspects are as follows; working as a nurse decreases their interaction with the doctoral students, the progressivity of projects causes stress, busyness of instructors, becoming elaborative and sceptical as too much information are obtained, difficulty of understanding the nursing concepts in a different language and the fact that it decelerates learning. **Education and Practice;** Obtaining a perspective, development of vocational philosophy, being able to analyse/synthesise the information, deepening, adapting it to education and practice, approaching in an integrated way, working with role-model instructors, becoming a role-model for students, obtaining the skills of responsibility, patience, lifelong learning, self reliance, being able to receive criticism and assessment are among its positive aspects. On the other hand, the negative aspects are as follows; the feeling of limitation in terms of deepening in fields outside of the project, getting lost within limitless information, responsibilities in undergraduate education, doctoral lessons, strain of the project, the feeling of an elaborative/ interrogator instructor. **Critical thinking, decision making and problems solving:** The fact that it enables a person to consider the studies in a critical way, development of access to the accurate information for solving the problem and decision-making, decrease of the need for consultancy and the fact that the lesson of scientific philosophy gains a critical perspective are among the positive aspects of education. On the other hand, the negative views are as follows; differencies and similarities in literature obstruct the decision-making, limitation of time for collecting the data of the project. The lesson of critical thinking was recommended.



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#### DOCTORATE PROJECTS AND ACQUISITIONS IN THE FIELD OF SURGICAL NURSING

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The six students are continuing to receive education within the framework of the Surgical Nursing doctorate program that started in 2005-2006 academic year under the Medical Sciences Institute of Dokuz Eylül University. In this study, objective of the doctorate projects and their contributions to the nursing science will be discussed.

##### Project Objectives:

**P1.** Developing of computer-based simulations in the pre-post operative education of the nursing students and assessing their effect on learning.

**P2.** Determining the stressors of the patients with Coronary Artery Bypass Grafting at discharge according to Roy Adaptation Model (RAM) and examining the effect of the training that is provided on healing perception, coping-adaptation and quality of life

**P3.** Creating the computer-based decision support system (CBDSS) in the enteral feeding and examining the effect of CBDSS on gastric intolerance and diarrhea.

**P4.** Determining the problems experienced by the patients who have undergone liver transplantation by taking RAM as basis and examining the effect of the support group intervention conducted for the determined problems on knowledge, symptom and quality of life

**P5.** Determining according to RAM the adaptation behaviors, reactions and needs of the patients with primary brain tumor and their families; assessing the effect of the supportive training on anxiety, depression, coping and symptom management in the pre-postoperative period.

**P6.** Determining the difficulties and needs experienced by the patients who have undergone total knee arthroplasty and examining the effect of the structured continuous of care according to RAM on pain, function, anxiety, depression and satisfaction.

##### Contributions of the Projects to the Nursing Science

It is thought that the projects will contribute to the following aspects of the nursing science: Development of the computer-based simulation method in the surgical nursing education of the undergraduate students, Development of different training materials for the different patient groups among the adult surgical patients, Creation of CBDSS in patients with enteral nutrition, Improving the patient care outcomes. Finally, it is thought that results of the four doctorate projects will contribute to the development of RAM.

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#### EXAMINATION OF THE CONTENT OF DOCTORAL PROGRAMS IN NURSING

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**Introduction:** The purpose of a doctoral education is to educate modern scientists who are competent, reliable, capable of performing independent research and skilled enough to display scientific performance. Nurses who have completed their doctoral education are expected to reach a significant result by solving a research problem and to contribute to the development of academic or practice sciences. In Turkey, doctoral education in nursing was initiated by Hacettepe University in 1972. **Purpose:** The purpose of this study is to examine the content of doctoral programs in nursing. **Method:** We reached with the universities offering doctoral education in nursing through the Council of Higher Education. We also investigated the contents of doctoral education of the universities using their web pages. Descriptive statistics were used to describe data. **Results:** According to data released by the Council of Higher Education (2010), there are 11 universities offering doctorate education in nursing in Turkey. Of these universities, ten are state universities and one is a private university. While only one university offers doctoral education in nine specialties of nursing, the number of the specialties offered by the other universities ranges from 1 to 7. Core courses which should be included in the content of a doctoral program are as follows: Nursing Theory Course (s), Research Methods and Philosophy of Science, and they vary from one university to another and from one specialty to another. **Conclusion and Suggestion:** The contents of doctoral education should be discussed further and its core elements should be appropriately determined.



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#### DOCTORAL PROGRAM AT DOKUZ EYLÜL UNIVERSITY SCHOOL OF NURSING

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Nursing doctorate program was initiated at Dokuz Eylül University in 2005. There are seven doctoral program in nursing. These are Surgical Nursing, Pediatric Nursing, Obstetrics and Gynecology Nursing, Public Health Nursing, Nursing Management, Internal Medicine Nursing, Psychiatric Nursing. Nursing doctorate programme based on research methods and nursing theories/models. Doctorate program in the nursing program courses were collected in three groups. The first group of courses: focuses on the basic courses (for example, research, nursing theories/models). The second group courses: focuses on the departments of nursing (for example, chronic diseases nursing in the Internal Medicine Nursing). The third group courses: focuses on the support the other group lessons. The research projects were prepared by consultants and students apply to the these projects. The courses and theses moves parallel to each other. Doctoral thesis should be focus on the experimental methods and nursing theory / models. Articles produced in doctoral thesis are expected to publish in SCI journals.

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#### CONTRIBUTIONS AND EXPERIENCED DIFFICULTIES OF USING MODELS IN THE DOCTORAL THESIS

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**Introduction:** The use of models in nursing researches is a quite new application for our country. Therefore, it is very important to determine the acquisitions and experienced difficulties of individuals who use models in their studies during the process. **Objective:** This study was performed in an attempt to determine the contributions and experienced difficulties of using models in the doctoral thesis. **Method:** The study is a phenomenological study. The study was performed with eight students who do or have completed their doctorate and thesis application in Dokuz Eylül University School of Nursing and five individuals who are the consultants of these students. The data were collected with qualitative interview method and recorded on recorder. After making their sound dumps, they were analysed by two researchers. **Findings:** The consultants directed their students to use models in order to guide them in their doctoral thesis, test the model, gain a philosophical perspective and contribute to the science of nursing. Students expressed that the model enables them to develop the skill of systematic and integrated thinking, analysing and integrating, simplifies the ability to correlate the concepts and makes it possible to see the whole study beforehand through forming a frame for the study. They indicated that they experienced many difficulties while using the model. These difficulties were indicated to be; language obstacle, the fact that concepts are abstract, the student and the consultant do not have full knowledge of the model at the beginning of the application, the researchers who indicate that they use models do not use the model accurately. Reading and discussing the articles, thesis that use the model and the book of the model writer, working in cooperation with the model users and the lesson of theory have made important contributions to overcoming these difficulties. **Conclusion:** While using models in studies makes precious contributions to the nursing knowledge, it gains the student a philosophical perspective, skill of systematic thinking and it also guides them. Some significant difficulties are experienced, since it has been used in our country just recently. In terms of overcoming the difficulties, increasing the communication with the people who use the model and access to the related resources enable the process.

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#### DOCTORAL EDUCATION IN NURSING: REVIEW

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The main responsibilities of universities are education, research and service. The doctorate education program encompasses the use and discovery of knowledge. Its purpose is to provide the opportunity in obtaining the necessary knowledge in the student's own field; to conduct independent research; to comment by examining through a wide and in depth perspective scientific findings and events, and to gain the required skills in order to obtain new synthesis. Those who have completed the doctorate program in nursing plan and carry out research in the development of knowledge and





application in nursing; cooperate with other medical experts in generating solutions to health care issues; develop creative leadership strategies where health care can effect or is effected by political, ethical and social events, and utilize scientific data in order to expand the quality of health care and nursing services. The doctorate programs in Turkey, in terms of structure and content, show a combination of a vocational doctorate program (DNS) with the nursing philosophy doctorate (PhD). **How Should a Doctorate Education Be?**

**Recommendations:** Be multidisciplinary and expand multidisciplinary activities. Increase inter-university cooperation. Increase the sharing of knowledge of doctorate and post doctorate studies. Increase the role played by and the meaning of research for the needs of the community in technological, social and cultural development. Integrate doctoral education with research centers. Provide time to students in accessing information and in researching; the responsibilities facing doctoral students must be clearly recognized and course load must not take place. Provide the necessary financial support to students to conduct research; observe and participate in scientific meetings and similar activities. Obtaining good counseling is a right. For this reason, in the time spent between the counselor and the student, the distance they have covered and their performance must be realistically evaluated. The faculty member must provide for and monitor the student's learning development; prepare suitable learning programs and a learning environment; establish open communications; share sources of information and must be an exemplary model, leader and an agent of change.

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### EVALUATION OF MEDICAL SURGICAL NURSING DOCTORAL PROGRAMS IN TURKEY

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The main purpose in doctoral program of nursing is to contribute to public's receiving qualified nursing service. That's why our aim is to train graduates who are able to analyze the factors which affect public health, produce scientific knowledge which may contribute to improving of nursing and nursing practice, able to analyze the research results and put them into practice so as to enhance the quality of nursing care. As well in health care system they should affect health policies in regional and national level and develop nursing care patterns responding Turkey's necessities, test and put them into practice and so as to make this functions possible they should be using the theories, notions and information of all related disciplines. And they should have advanced communication, collaboration and training skills.

The doctoral program of nursing has first started in 1972 in Turkey the field of nursing at Hacettepe University School of Nursing. According to the data of 2010; in Turkey doctoral education of nursing has been carried out in 11 nursing schools. It is clear that the doctoral programs introduced under the name of "nursing" has also been started to be carried out in the departments.

This study has been planned so as to make general situation assessment examining the doctoral programs of Medical Surgical Nursing.

In Turkey there are 6 programs in medical surgical nursing department. In our study these programs are evaluated in terms of starting time of the academic year, the number of the current attending students, the number of the graduates, the nature of the programs (cooperation with different disciplines), the lectures in the program and the thesis produced.

**Keyword;** nursing, doctoral program, medical surgical nursing:

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**P90 THE THEME ANALYSIS OF THE PhD THESES ON PHYSICAL THERAPY IN TURKEY: A STUDY COVERING THE YEARS 1990-2010**

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The purpose of this study is to analyze PhD theses in the field of physical therapy about main theme and its subthemes in Turkey. The aim of analysing PhD thesis in physical therapy is to supply a new view point with producing different ideas for developing physical therapy. The theses are examined through computer-based screening system to collect the data. "National Thesis Center" website of Council of Higher Education (CHE) is used for this purpose. Besides, the data is collected through the online database system of several university libraries and health science institute. This study is conducted by scanning and subject analysis of 158 doctoral theses. In the first part of the analysis, the theses on Physical Therapy have been categorized according to the dates, universities, institutes and departments in which they were prepared, and subjects. In the second part, the PhD theses on have been categorized as main theme. In the third part, the PhD theses within main theme category have been sorted into subcategories.

The overall findings reveal that the total number of theses has doubled over the last 10 years. Although it is encouraging to see the increase in the numbers, a strong interest in certain subcategories can be seen as a problem. The results stemming from this research also reveal that different ways of thinking in the field of Physical therapy is necessary for development of the field. Therefore, this study has an important role to prevent the accumulation of similar studies in the field by providing guidance to researchers and their academic advisors so that they can generate more effective and efficient studies.

**P91 PROFILE OF SCIENTIFIC ARTICLES PUBLISHED IN JOURNALS INCLUDED IN INTERNATIONAL CITATION INDEXES AND ORIGINATING IN PhD DISSERTATIONS COMPLETED ON PHYSICAL THERAPY IN TURKEY**

**Başkurt Z, Başkurt F**

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This study aimed to assess the profile of scientific articles published in journals included in international citation indexes and originating in PhD dissertations written on Physical Therapy in Turkey. This study is a retrospective, cross-sectional, web-based and descriptive enrollment study. In this study, 158 PhD dissertations was examined. OCLC First Search, EBSCO Host Medline, ISI Web Of Science [Science Citation Index Expanded (SCI-exp), Social Science Citation Index (SSCI), Arts and Humanities Index (A&HCI)] are searched by using subject title, key words and the name of thesis researchers. The number of articles from the PhD dissertations originated the started to increase in last decade. This study showed that the owner of PhD thesis in physical therapy area had published increasing number of articles in indexed journals. We confirm that the increase in the number of articles resulted from the attempt to meet the requirements for advancement to academic degree.

**P92 THE THEME RELATIONSHIP BETWEEN MASTER'S AND PhD THESIS IN PHYSICAL THERAPY**

**Başkurt Z, Başkurt F**

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The aim of this study is to confirm the theme integrity between master's and PhD thesis completed by the same researcher. The database of the Turkish Council of Higher Education has been searched the years 1990–2010 for master's and PhD theses. All of the theses were evaluated in terms of theme by two different researchers. The results show that the main themes are generally similar. We consider that the same theme using in master's and PhD thesis may be a quality indicator for focusing in a specific area.



**P93** EXAMINATION OF THE DATA ANALYSES AND DATA COLLECTION TOOLS USED FOR PHD THESES IN THE FIELD OF PHYSICAL THERAPY IN TURKEY

**Başkurt Z., Başkurt F.**

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The purpose of this study was to examine PhD theses completed between 1990-2010, at Institutes of Health Sciences of Turkish universities in terms of the types of statistical techniques used and of data collection tools. This qualitative study utilized text analysis in order to examine PhD theses thoroughly. Methods of researches in sample was overviewed, used data collection tools and statistical techniques was determined. In the majority of these theses, descriptive statistics and nonparametric statistical techniques were used. Advanced and detailed statistical analyses using is not sufficient in studies. The results showed that in the methodology section of the thesis not contained the sufficient information about the selection criterias, the sample the data collection tools, the importance of the studies, the dependent and independent variables of the studies.

It concluded that fields within physical therapy should make extra effort to equip PhD students with sufficient knowledge of research methodology.

**P94** PhD EDUCATION IN PHYSIOTHERAPY AND REHABILITATION AT HACETTEPE UNIVERSITY

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Hacettepe University, Department of Physiotherapy and Rehabilitation was first founded in 1961 by Prof. İhsan Dođramacı. PhD program was started within Institute of Health Sciences in 1967. In 1996, Cardiopulmonary Rehabilitation, Occupational Therapy, Prosthetics, Orthotics and Biomechanics and Sports Physiotherapy programs were added to existing PhD program. The school is the most competitive in student enrollment among Turkey's 26 Physiotherapy and Rehabilitation Departments. In 2011, Physiotherapy and Rehabilitation is celebrating its 50<sup>th</sup> anniversary in Turkey as an independent field. The aim of this study was to assess the state of PhD education in the last ten years and define the requirements for developing PhD program standards in the field of Physiotherapy and Rehabilitation. Data were obtained from the database of Institute of Health Sciences. PhD graduates since 2000 were selected for further analysis. Publication quality measurements were performed for every graduate using ISI Web of Knowledge<sup>SM</sup>. Peri-thesis publication data starting from the first year of PhD studies ending at 2 years after graduation was subsequently analyzed with Microsoft Office Excel<sup>®</sup> 2007 and expressed as means  $\pm$ SD. From 2000 to 2010, 67 students (male: 34.32%; female: 65.67%) have been graduated from 5 different programs. Mean age at graduation was 32 $\pm$ 3 years. Average duration of PhD study was 5 $\pm$ 2 years. All graduates are currently employed as faculty in 16 universities in Turkey. According to ISI data, 11 of 67 graduates have published their thesis work in SCI-Expanded journals; while the rest (56) have published their thesis in other forms e.g., notes, proceedings in either SCI-Expanded or Pubmed journals. These data suggest that all PhD students are exposed to a research environment and their work is either found to be publishable or presented in scientific meetings. Some graduates published their thesis long after graduation. This may show that although publication is not required for granting PhD degree, students are keen to publish in order to access academic positions.

**P95** THE LAST CHAIN OF THE POSTGRADUATE STUDY: DOCTORAL EDUCATION

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Postgraduate studies aiming to raise qualified human resource able to produce synthesize and utilize knowledge are carried out by Institutes of Universities at around the world. Since it is the last chain of the postgraduate study, it is important to determine the quality of education, efficiency and level of development of the Institutional and governmental process as well as the necessary emphasize which should be given for this issue.



To educate a student for science doctorate position is as much as important to be a student. It is one of the most important step to educate a science doctor in the way of being a scientist. Doctorate is a programme which aims to put for the original researches' results. At this stage the candidate should have the ability of contributing a new sight and new comment to science by the research that he is handling. Science doctor carry out the studies and researches which puts new insight and comment with the scientific sufficiency based on his theoretical and practical education. He also should have the ability of giving comments to the subjects from the different sights and should analyse and synthes the subjects with his theoretical and practical education.

That Doctor of Philosophy degree is a comparatively recent concept before selecting and starting a research programme the most important eligibility question is that if he/she has the academic qualifications to be accepted as a student for a research degree or not. If he/she already has a master's degree it is usually acceptable, whatever the class of their undergraduate degree.

Doctoral programs have a duration of minimum four years which consists of completion of courses, passing doctoral qualifying examination, and preparing and defending a doctoral thesis. The last evaluation of PhD thesis research is one of the most important parts of this education. Thus great importance should be given to this education under the framework of university's institutes. So the education requires patience and self abondenment.

**P96 THE PROFILE of PHYSIOTHERAPY PhD GRADUATES: Postdoctoral Scientific Activities and Career Status**

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PhD process in Turkey starts after four years of bachelor degree and minimally two years of master degree program. In last five years, the need of academics has increased in parallel with the new constituting schools on physiotherapy which has fifty years history in Turkey. For this reason, doctoral education in physiotherapy science achieved great importance in Dokuz Eylul University (DEU) Graduate School of Health Sciences. Our study was planned to determine the scientific activities profile and academic career status of the students graduated from Physiotherapy PhD programs in last five years.

In our study, 17 physiotherapists graduated in last five year from DEU School of Physical Therapy and Rehabilitation had performed the questionnaire which assesses the scientific activities and career status of the participants. We found that 88% of the participants have finished their PhD degree in last three years, 76.5% are working still in an academic institution. The improvement in academic career was detected as 35.3%, and the participation ratio to the scientific activities as 35.2%. Additionally, it was stated that 70.6% of the participants have had minimum two postdoctoral publications.

As a result of our study, we found that in addition to the increased demand for the postdoctoral education, there is a decrease in postdoctoral scientific activity such as participating to the congress/courses or having international publications.

**P97 MULTIDISCIPLINARY PHD PROGRAMS A CHANCE FOR EUROPE IN THE COMPETING AND CHANGING WORLD**

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According to the to the "Seventh Framework Program of the European Community" decision letter of the European Parliament and of the Council, the current status of European Research community is not in the phase of world leadership in most of the scientific areas including the biomedical sciences. In verbatim form the letter, "Although Europe now has more biotechnology companies than the US, most of them are small and less mature than their competitors". Based on my graduate study experiences in Turkey, US and Europe, this is plausible to pronounce that European PhD programs have similar defects in terms of their competition capacity and productivity. The graduate programs in US are more complicated and provide students more depth with the coursework, seminars and teaching experience. The Turkish PhD programs are more alike to US programs in terms of presence of a graduate committee, proposal preparation and coursework. The sequencing of the human genome and advances in proteomics generate new multidisciplinary perspective which should be in the frame of biomedical PhD programs. In this new era, additional funding and research opportunities should be provided to PhD candidates providing innovative approaches. For example, the human and plant genomes could be used to discover new generation of medicine. Similarly, the proteomics of fungal kinases could set new research dimensions to understand the function of these proteins in human and protein medicine. The research tradition of the US and industrious power of China are important challenges for the European community and associated nations like as Turkey. Therefore, the competition relies on the capacity of innovative and interdisciplinary PhD research in the vital fields like as Biomedical Sciences.