ORganisation of PhD Education in Biomedicine and Health Sciences in the EUropean System

ORPHEUS 2009: Fourth European Conference

Setting Standards for PhD Education in Biomedicine and Health Sciences

Programme and Abstracts

Organised by

The Faculty of Health Sciences, Aarhus University, Denmark

and

ORPHEUS

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PREFACE

We are delighted to welcome all participants to the Fourth ORPHEUS conference for what we sure will be a significant event.

Since 2004 when steps to establish ORPHEUS were initiated, there has been a steady increase in the interest for the objectives of the organization, that is in developing the PhD degree as a cornerstone of European biomedical and health science research. This is reflected in the fact that the participant list for this conference includes delegates from almost all European countries.

The aims of the present conference are to discuss to what extent standards for the PhD in our field can be established. The content and requirements for a PhD degree will inevitably vary between countries, universities and faculties. However, if the value of the PhD degree is to be maintained and increased, some harmonization of current standards and goals is needed.

In putting together the programme, we have been fortunate in being able to attract many of the main actors concerned with PhD training in Europe, including the European Commission, the European Universities Association (EUA), Council for Doctoral Education (EUA-CDE), the Association of Medical Schools in Europe (AMSE) and the World Federation for Medical Education (WFME). This will give us a firm basis for one of the major - if ambitious - objectives, the preparation of a *position paper*. It is the intention that this paper will summarize the consensus documents from previous ORPHEUS conferences, provide a status concerning European PhD education in biomedicine and health sciences, and make a number of recommendations for the future. The consensus document will be presented at the AMSE conference in Zagreb this June, and will form the basis for a planned joint WFME-ORPHEUS-AMSE document.

To help us in this task, we have many presentations, both oral and as posters, from biomedical and health science faculties around Europe, and also presentations from a number of PhD students/candidates to whom we extend a particularly warm welcome. We hope that this will provide an environment which will allow full discussion of the challenges involved in ensuring the quality of our PhD programmes.

On behalf of ORPHEUS and the Organizing Committee we wish you a successful conference, which we hope you will find both professionally and culturally worthwhile.

Zdravko Lackovic
President, ORPHEUS

Michael Mulvany
Chairman of the Organizing Committee

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PARTICIPANTS **311**

ORPHEUS COMMITTEES **41**

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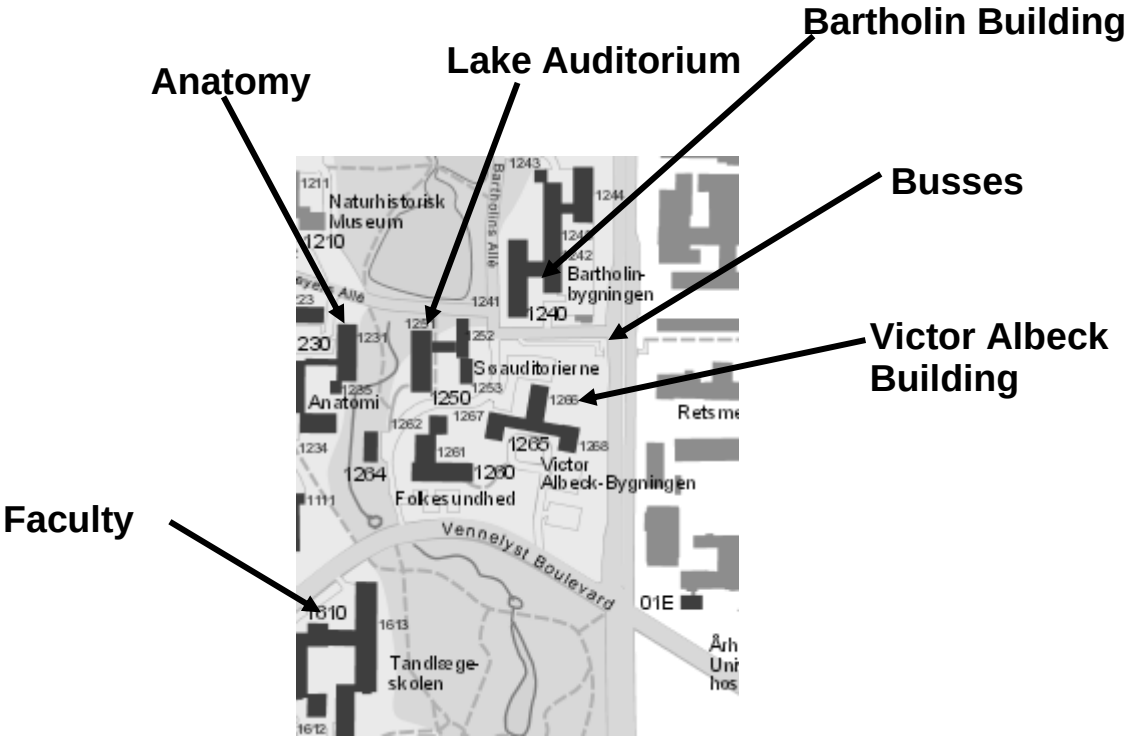
INFORMATION

SCIENTIFIC PROGRAMME

The conference will take place in Aarhus University Park. Plenary sessions and the poster session will take place in the *Lakeside Lecture Theatres.* Group discussions on the Position Paper will take place in other locations (see plan, details to be announced at the conference). Coffees, refreshments and lunches will be served at the *Lakeside Lecture Theatres* throughout the conference.



Internet access: Computers with internet access are available throughout the congress in the *Victor Albeck Building*. Participants carrying their own laptop can have wi-fi access free of charge in the *Victor Albeck Buidling* and in the *Lakeside Lecture Theatres*. Username and passwords will be handed out at the Registration Desk.

Busses: There are frequent busses going downtown from the bus-stop indicated. All busses going downhill go to the railway station.

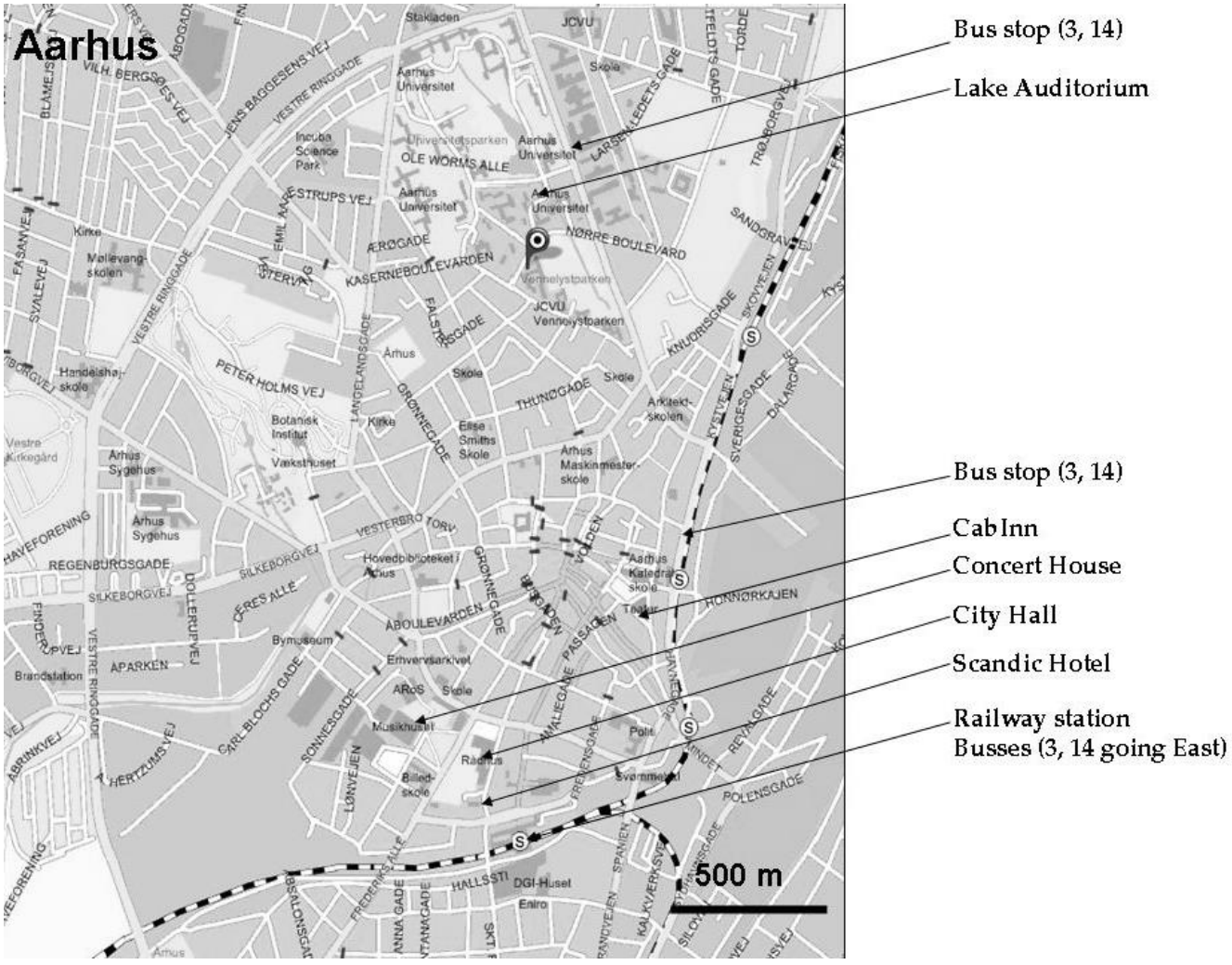
Information to those who will hold lectures: Please, check at least one hour before the session that your presentation has been satisfactorily loaded.

Information to those, who will give posters: Authors are kindly requested to be in the area of their poster during the poster session on July 24 from 14.45 to 15.45. Please ensure that your posters are up for the whole of the conference, and not just for the poster session.

SOCIAL PROGRAMME

Welcome reception will be held at Aarhus City Hall on Thursday, 23 April 18:30. Busses to the reception will leave outside the *Lakeside Lecture Theatres* at 18:15. Please remember to wear your congress name badge.

Conference dinner will be held at Aarhus Concert House on Friday, 24 April 19:00. Aarhus Concert House is located next to Aarhus City Hall and in walking distance from Scandic Hotel Plaza and Cab Inn Aarhus. Please remember to get a dinner ticket when you sign in at the Registration Desk. If you do not have a ticket, ask at the Registration Desk if there still are tickets available (cost €50).



PROGRAMME

Thursday, 23 April

15.00 Registration and poster setup

Opening and introduction (Auditorium 1)

17.00 Welcome from the University
Lauritz Holm-Nielsen, Rector, Aarhus University

Welcome from the Faculty
Søren Mogensen, Dean, Faculty of Health Sciences, Aarhus University

A brief introduction to ORPHEUS
Zdravko Lackovic, President ORPHEUS

The aims of ORPHEUS 2009
Michael Mulvany, Head Aarhus Graduate School of Health Sciences, Aarhus University

17.30 The PhD degree in the context of EU plans for Science and Research.
Sergio Di Virgilio, Research Directorate General, European Commission

18.15 Busses to reception

18.30 Reception at Aarhus City Hall

Friday, 24 April

Session 1 **European organizations involved in health science PhD training**
Chairmen: *Jens Christian Djurhuus, Chairman Danish Free Research Council;*
Jadranka Božikov, Director Andria Štampar School of Public Health, Zagreb

09.00 EUA Council for Doctoral Education (O1)
Jean Chambaz, Chair EUA-CDE

09.15 The Association of Medical Schools in Europe: AMSE and the role of the medical school in supporting PhD education (O2)
David Gordon, President AMSE

09.30 Global standards for quality improvement in medical education (O3)
Stefan Lindgren, President WFME

09.45 Discussion. How should ORPHEUS interact with these organizations?

10.00 Coffee

Session 2 Keynote lecture

Chairman: *Michael Mulvany, Head Aarhus Graduate School of Health Sciences, Aarhus University*

10.30 Empowering young scientists and promoting a creative research environment
Patrik Brundin, Professor in Neuroscience, Coordinator of Research Centres and Programmes, University of Lund

Session 3 European PhD degrees and programmes in health sciences

Chairmen: *Irena Misevićiene, Vice-rector Kaunas University*
Lise Wogensen Bach, Vice-Head Aarhus Graduate School of Health Sciences, Aarhus University

11.25 European PhD programmes in health sciences (O4)
Zdravko Lackovic, University of Zagreb. President ORPHEUS

11.45 Quality assurance in PhD education (O5)
Seppo Meri, University of Helsinki, Secretary ORPHEUS

12.05 Position paper
Distribution of questions to be considered for a *position paper*
This *position paper* will give suggestions for standards for PhD programs and will be presented at the meeting of the Association of Medical Schools in Europe (AMSE) to be held June 2009

12.20 Lunch

Session 4 **Principles of setting standards**

Chairmen: *Jadwiga Mirecka, Jagiellonian University Medical College, Krakow*
Guenther Gell, Dean Graduate School, University of Graz

13.30 Setting standards for medical education (O6)
Hans Karle. World Federation for Medical Education

13.50 Setting standards for PhD Education (O7)
Michael Mulvany, Head Aarhus Graduate School of Health Sciences, Aarhus University

14.10 Establishing a dynamic doctoral program. A PhD student perspective (O8)
J. M. Woolf, University of Oxford

14.30 Poster session and coffee

16.00 General discussion

Session 5 **The position paper**

Chairmen: *David Gordon, President AMSE*
Petr Hach, Head of Institute of Histology and Embryology, Charles University, Prague
Helle Prætorius, Local Organising Committee, Aarhus University

16.15 Procedure for preparation of the position paper

16.30-18.00 General discussion in groups (Victor Albeck Building)

19.00 Dinner at Aarhus Concert Hall

Saturday, 25 April

08.30 ORPHEUS general assembly (Auditorium 3)

Session 6 **The PhD degree: what should it consist of?**

Chairmen: *Søren Peter Olesen, Professor of Physiology, University of Copenhagen. Former Department Head at NeuroSearch*
Iben Møller Jønsson, PhD Association, Aarhus University

09.00 The PhD degree: research, training or both? (O9)
Chris Van Schravendijk, Director of Doctoral School of Life Sciences and Medicine, Free University Brussels

09.20 Different formats of external quality evaluation (O10)
Jadwiga Mirecka, Professor at Department of Medical Education, Jagiellonian University Medical College, Krakow

Chairmen: *David Gordon, Petr Hach, Helle Prætorius (continuation of Session 5)*

09.40 Reports from groups concerning position paper

10.15 Break

Session 7 **Free communications**
Chairmen: *Jørgen Vinten, Head Copenhagen Graduate School of Health Sciences*
Hans Jørn Kolmos, Odense Graduate School of Health Sciences
Osman Sinanović, PhD programme, University of Tuzla

10.45 Setting standards for efficiency in the PhD (O11)
G.L. van Winkel, Wageningen University

11.00 The experience of a multidisciplinary health science PhD programme at university of Las Palmas G.C. and its applicability to new PhD studies under Bologna Process (O12)
M.M. Tavio, University of Las Palmas

11.15 Recent PhD study system and some opinions of PhD students at Jessenius Faculty of Medicine (O13)
J. Staško, Comenius University

11.30 Standards in PhD study programmes at Faculty of Medicine in Hradec Kralove (Czech Republic) (O14)
M. Cervinka, Charles University, Hradec Kralove

11.45 Interdisciplinary postgraduate program in molecular medicine of the University of Cologne (O15)
D.G. Grosskopf-Kroiher University of Cologne

12.00 Distribution of proposed *position paper*

12.15 Lunch

Session 8 **Conclusions**
Chairmen: *Zdravko Lackovic, President ORPHEUS*
Seppo Meri, Secretary ORPHEUS

13.15 Presentation of final version of proposed draft *position paper*

13.30 Discussion

14.00 Provisional acceptance of draft *position paper* and appointment of a Task Force

14.15 Concluding remarks

ABSTRACTS

OPENING LECTURE

THE PHD DEGREE IN THE CONTEXT OF EU PLANS FOR SCIENCE AND RESEARCH

Sergio N.A. Di Virgilio, Marie Curie Actions – Networks, Unit T.3, Research Directorate General, European Commission

The Marie Curie Actions currently funded under FP7's People programme will support researcher training, career development and mobility through a variety of fellowships and networking activities including those undertaking PhD studies (e.g. Initial Training Networks, ITN). Training is provided by both the public and commercial sectors. This ensures that researchers trained through the ITN 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 are a key component of the ITNs and also strongly contribute to the interdisciplinary and intersectorial dimensions of the training. This funding scheme also emphasises the importance of the complementary skills training which also constitute an essential component of the career development plan of the trainees.

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 mandatory international mobility. Funding is provided for up to 36 months for each researcher.

The Marie Curie Actions are bottom up actions open to all fields of research and do not predefine disciplines that will be supported. The biomedicine and health areas of research accounted for 23% and 33% of the projects funded in the first and second call for proposals respectively and are expected to train more than 550 researchers to PhD level in 2007-08 only.

KEYNOTE LECTURE

EMPOWERING YOUNG SCIENTISTS AND PROMOTING A CREATIVE RESEARCH ENVIRONMENT

Patrik Brundin, Neuronal Survival Unit, Wallenberg Neuroscience Center, Department of Experimental Medical Science, Lund University, Lund, Sweden

We all want to perform creative research! But what exactly is creativity? In what sorts of research environments does creativity thrive? What sort of leadership and management promotes creativity and synergistic interactions in a research group? How do we promote creativity in young scientists and help them develop into independent thinkers? There are no standard "right" answers to these questions.

In my presentation I will share some thoughts on these topics. They do not represent "a single truth", but should be viewed as a source of inspiration and a starting point for discussions. I believe we need to think about these vital issues regularly, discuss them with our coworkers and constantly reevaluate how we work and interact. Thereby, we hopefully take a small step closer to research environments that stimulate and enthuse the next generation of scientists.

ORAL PRESENTATIONS

O1: EUA COUNCIL FOR DOCTORAL EDUCATION

Jean Chambaz, Chair EUA-CDE

Abstract not yet received

O2: THE ASSOCIATION OF MEDICAL SCHOOLS IN EUROPE (AMSE) AND THE ROLE OF THE MEDICAL SCHOOL IN SUPPORTING PHD EDUCATION

David Gordon, Association of Medical Schools in Europe, c/o WFME, University of Copenhagen, Faculty of Health Sciences, Copenhagen, Denmark

The Association of Medical Schools in Europe (AMSE) is a forum for Medical Schools and Faculties in the European countries to establish contacts and exchange information. AMSE works to enhance and ensure the quality of activities of medical schools, and the Constitution explicitly mentions the role of medical schools in postgraduate education, in research and in research training.

AMSE has worked with ORPHEUS since the first Zagreb conference – why?

First, a medical school without a research programme (including PhD education) of good quality will not be able to offer medical education in the essential context of the discovery and development of new knowledge.

Second, maintenance and enhancement of the quality of all suspects of a medical school's work - teaching, research, and the interaction with health-care - is essential: see the AMSE Barcelona Declaration on the AMSE website (www.amse-med.eu).

Third, PhD education is not only part of the core role of the medical school; the medical school is the only academic environment where many of the most appealing and important research questions can be studied.

An important obstacle to the PhD education function of medical schools is the lack of understanding of the PhD degree in some centres, and variable (sometimes low) standards. This conference is an important step in resolving these problems.

O3: GLOBAL STANDARDS FOR QUALITY IMPROVEMENT IN MEDICAL EDUCATION

Stefan Lindgren, Professor, President, World Federation for Medical Education

The WFME global standards programme was launched in 1997. The trilogy, comprising standards for quality improvement in basic and postgraduate medical education and CPD were published in 2003 and implemented during a world congress in Copenhagen later that year.

The need for standards is particularly based on globalisation of medical education, changes in health care delivery systems and universities and the explosion in the number of medical

schools. The main purpose is of course to safeguard practise in medicine under conditions of increasing internationalisation. The WFME standards are intended to stimulate authorities, organizations and medical education institutions to plan for reform and quality improvement. This is even more important in times of global recession, in order to emphasize the long-term academic mission of medical education.

The standards have two levels of attainment; Basic (minimum requirements - must) and Quality development (should). They comprise broad categories of medical education grouped in 9 main areas and 36 sub-areas and may be used both for self-evaluation and external evaluation. The WFME standards have been widely used and evaluated since 2003 and translated world-over. They are also useful for accreditation purposes.

An extension of standards for quality assessment and improvement to Ph.D. education is a natural step. WFME believes that the format of its global standards may be useful in this process.

O4: EUROPEAN PHD PROGRAMMES IN HEALTH SCIENCES.

Zdravko Lackovic, University of Zagreb, Croatia, President ORPHEUS

Creation of Europe as a knowledge based society is dependent on high education especially doctoral education or the "third cycle" of Bologna process. The „third cycle“ is essentially different from the other two, because its core component is research. Enormous differences in the development of science among European countries make the goals like harmonisation and mobility almost unrealistic. To increase its scientific achievements Europe needs highly competitive projects, with no place for less developed countries. In spontaneous scenario leading research institution will be become even more competitive. However, the gap between different countries can only increase and idea of mobility will turns to increased brain drain only. Demand to increase the number of PhD holders might end up in decreasing the criteria for quality. Even more: increasing the number of PhDs in less developed universities can lead only to poor scientific performance even as more permanent. Is there a solution out of this grim anticipation of spontaneous development? We in ORPHEUS believe that with harmonised efforts „third cycle“ can provide new opportunities for the advancement of clinical research as well as for strengthening basic research in the area. How to maintain and improve the quality in all parts of Europe obviously is a difficult challenge. New innovative ideas are needed, short-term achievements without contribution from all parts of Europe seems impossible.

The fourth ORPHEUS2009 "Setting Standards for the PhD Degree in Biomedicine and Health Sciences" should be „brain storming“ and an effort on the basis of previous ORPHEUS conferences to produce wider consensus about PhD in health sciences. At the same time this should be the introduction into joint WFME-ORPEHUS-AMSE project to create missing WFME document in a series „WFME Global Standards for Quality Improvement in Medical Education”.

O5: QUALITY ASSURANCE IN PhD EDUCATION

Seppo Meri[1], Eeva Pyörälä[2]. [1]Haartman Institute, [2]Development & Research Unit for Medical Education, Faculty of Medicine, University of Helsinki, Finland

Quality is an inherent and obvious goal for all scientific work. Yet, for PhD training and education processes and systems to safeguard and improve quality are needed. These include clear assessment criteria, independent external evaluation as well as verification and validation

of an achieved quality assurance status (certification). Quality assurance is a valuable tool in the processes of harmonisation and internationalisation of PhD training. The best benefit comes from identifying the unit's own strengths and development needs. In PhD training quality assurance includes setting the standards for (1) PhD courses, (2) supervision and (3) dissertation. Competence of postgraduate students could be verified by systematic student selection and clear selection criteria. The students need to write a personal study plan and a research plan that will be independently evaluated.

The Faculty should provide documentation and transparent information on the studies available and register progress of the PhD students. The supervisors and teachers should be given training and support for high standard guidance and advice on funding. The PhD students themselves should also have an active role in the planning and development of training. Feedback should be collected from students on instruction, supervision and courses organised. In return they should be provided with counterfeedback on measures that have been taken to develop the training. The dissertation will be assessed at multiple independent steps by a doctoral committee, reviewers, opponent and the Faculty Council. The Faculties should have plans for postgraduate education and set objectives with international standards. Development should occur in cooperation with national and international partners. ORPHEUS is in a key position to provide a platform for collaboration and harmonisation at the European level.

O6: SETTING STANDARDS FOR MEDICAL EDUCATION

H. Karle, World Federation for Medical Education (WFME). Faculty of Health Sciences, University of Copenhagen, Copenhagen, Denmark

In 2003, the WFME published its Trilogy on Global Standards for Quality Improvement of Medical Education, covering basic medical education, postgraduate medical education and professional development of medical doctors. http://www.wfme.org.

The concept of defining international standards in medical education and the considerations made by the WFME international Task Forces behind this process concerning advantages and reservations in using such standards as well as some ideas for standard setting for Ph.D. programmes will be presented.

The conclusion is that standard setting is an essential part of quality improvement in higher education.

O7: SETTING STANDARDS FOR PhD EDUCATION

Michael Mulvany, Head Aarhus Graduate School of Health Sciences, Faculty of Health Sciences, Aarhus University, Aarhus, Denmark

The increased demand for researchers has also increased the need for international mobility. The PhD degree is generally seen as a basic quali-fication when applying for research positions, but unless there is general agreement on what the degree entails, it will lose its value. For this reason alone, efforts should be made to obtain some harmonization. However, the process of such describing such standards also provides a basis for discussing the different approaches and different programmes which are used, and hence for increasing the overall quality of the PhD degree.

The modern concept of the PhD degree, research training under supervision, was developed in the nineteenth century and has since spread to most of the World. Points on which there is general - if not universal - agreement as regards biomedicine and health sciences include

the following. (a) The overall aim is to produce a qualified researcher, evaluated by the PhD thesis and an oral defence of the scientific results. (b) The benchmark for the content of PhD thesis is review and three published international articles or equivalent publishable manuscripts (the ORPHEUS 'Zagreb declaration 2004'). (c) A PhD programme should include theoretical training not exceeding 6 months. (d) A PhD programme should be structured, with qualified and regular supervision. (e) The length of a PhD programme should be 3-4 years.

At this conference, a position paper on these and other questions is being prepared to define the main elements of a European PhD in biomedicine and health sciences, and point to factors which can enhance the quality of a PhD degree. The content and requirements for a PhD degree will inevitably vary between countries, universities and faculties. However, if the value of the PhD degree is to be maintained and increased, some harmonization of current standards and goals is needed.

O8: ESTABLISHING A DYNAMIC DOCTORAL PROGRAM: ENHANCING STUDENT EXPERIENCE AND DOCTORAL PROGRAM EFFICACY WITH NOVEL MODES OF SOCIAL NETWORKING

J. M. Woolf, Dept. of Physiology, Anatomy, & Genetics, Oxford University, Oxford, UK

Given the diversity inherent in the nations of Europe and field of biomedicine, there is a critical need to establish uniform and equitable governing criteria for the conferment of a PhD degree. Underlying these standards must be fundamental ideals that aim to: 1) enrich the training and overall experience of graduate students, 2) optimize the efficacy and impact of research efforts, and 3) foster the development of core competencies with transferable value that will enable doctoral students to more efficiently and effectively engage in scientific scholarship. To achieve these ends, doctoral education must adopt a framework that embraces both traditional and novel modes of social networking. More than just a topical buzzword, "social networking," at its core, has and continues to be the bedrock of academia. Augmenting traditional methods of scholarly social networking like academic conferences, journal publications, and professional societies, individual institutions must think about novel ways of linking people, ideas, departments, and assets together to enrich the quality of their programs and advance research in the field. By doing so, institutions can directly address some of the most pervasive issues facing students in doctoral training like feelings of isolation, lack of direction and supervision, as well as uncertainty about the future. Advisory alumni contact directories and intra-institutional cross-disciplinary research conferences are just a sampling of the many possible concrete implementations of social platforms that can be used to enrich an institution's program. Integration of novel modes of social networking into doctoral programs provides dynamic mediums for collaboration, communication, and pedagogy that leverage existing resources to improve not only the experience and performance of students but also the efficiency and efficacy of European doctoral programs.

O9: THE PhD DEGREE: RESEARCH, TRAINING OR BOTH?

Chris van Schravendijk, Diabetes Research Institute, Vrije Universiteit, Brussels, Belgium

Between 1994 and 2006 the PhD program in Medical Sciences in Flanders has been co-ordinated between the five Faculties of Medicine in a Truncus Communis model. During this period, 12 editions of 9 thematic days per year were offered to all PhD students of Medical Sciences in Flanders, by an annual edition of 1200 printed booklets and –in more recent years-

also via a website. In 2007, Doctoral Schools (DS) were initiated in the universities and the PhD in Medical Sciences became part of the DS in Life Sciences and Medicine. The aim of the DS is to provide a structural framework for the PhD process, to enable students to develop a wider range of skills and to enhance the position of PhD's on the labour market. Doctoral Schools are responsible for the stimulation of interdisciplinary interactions among PhD students. Universities can collaborate with each other and with external parties to offer an attractive program for their PhD students. Membership of a DS entitles the PhD student to attend activities of the DS training programme but this programme is, however, not compulsive. Therefore the degree of active participation is largely determined by the attractiveness of the programme. Otherwise, faculties can impose some students to follow part of a training program when this is judged necessary for completion of the doctorate. The total programme requires collection of 60 study points, distributed over 4 categories. The working language of the DS is English, making the DS important for internationalisation. Current duration of the doctorate in Medical Sciences in Flanders is 4 years, eventually prolonged for a 5th year if needed. The requirements for submission of a PhD thesis are high and time spent in the training program of the DS is in direct competition with time spent on research and writing papers. As a consequence, the overall requirements for obtaining the PhD degree are expected to become an important factor in the success of the new Doctoral Schools in Flanders.

O10: DIFFERENT FORMATS OF EXTERNAL QUALITY EVALUATION

Jadwiga Mirecka, Department of Medical Education, Medical College of Jagiellonian University, Krakow, Poland

External quality assurance systems are driven by opinion of peers, based on data provided by evaluated institution. Different formats of such systems include: external evaluation, accreditation (certification), benchmarking and ranking.

External evaluation consists of the four steps: institutional self-report, analysis of the report, site visit, recommendations. External evaluation provides an opportunity for a deeper insight into processes going on within an institution The purpose of external evaluation is an improvement of quality and usually there are no formal consequences of negative findings

Accreditation procedure is based on the same four steps, it ends however with a decision regarding accreditation. Awarding accreditation usually confirms a compliance with agreed standards and serves as a guarantee of required minimum quality. Verdicts of the accrediting bodies can be used for various formal decisions including withdrawal of funds or closing of the school

Benchmarking relies on comparing the organization, process , outcomes of one institution to those of another. It often means projecting own institution/programme against others as well as seeking examples of good practice.

Ranking provides a sequence of institutions/programmes on a scale of quality. The criteria of the latter are arbitrarily established by those who prepare and announce ranking (most frequently media, or other public institutions).

Applicability of these systems for quality assurance of PhD programmes/schools will be discussed.

O11: SETTING STANDARDS FOR EFFICIENCY IN THE PHD

G.L. van Winkel, Wageningen University, Graduate School WIAS, Wageningen, The Netherlands

The theme of this conference is setting standards for the PhD, and obviously that refers first and foremost to quality standards, because in science quality comes first. However, efficiency of the PhD should be considered as well, because of costs in financial terms and – in my view more important – because of costs in human terms. Failure in the PhD is often a personal drama. Having completed a PhD study without a thesis even has its own acronym: ABD, 'all but dissertation'.

Pursuing a PhD has developed from a lifetime 'magnum opus' to the proof of being an independent researcher. Still, this challenge will not be concluded successfully by all, nor will all PhD candidates be able to conclude it within reasonable time. Efficiency in the PhD, therefore, refers to 'time to degree' as well as to 'final completion rate'.

How to define and measure efficiency, how to differentiate between types of PhD candidates, how to improve efficiency without compromising on quality? Based on literature and own research and experience, I will show what kind of statistics are useful and how those statistics are sometimes misused. Finally, I will show how the graduate school where I work managed to bring down time to degree with eight months by changing 'supervision culture' and setting clear and feasible standards for the PhD thesis.

O12: THE EXPERIENCE OF A MULTIDISCIPLINARY HEALTH SCIENCE PhD PROGRAMME AT UNIVERSITY OF LAS PALMAS G.C. AND ITS APPLICABILITY TO NEW PhD STUDIES UNDER BOLOGNA PROCESS

M. M. Tavío, Clinical Science Department. University of Las Palmas de G.C., Las Palmas, Spain

In order to adapt to Bologna process the Spanish university education has been organized into three levels, Graduate, Master and PhD. Spanish universities and education authorities have put a lot of effort to converge toward the objectives derived from Bologna process. Part of pledge has achieved success such as mobility and exchange of first degree Spanish students with other European universities. Nevertheless, the panorama of teaching staff exchange is different.

The PhD programme "Advances in Microbiology and Infection" was designed as a new proposal of PhD studies based on a multidisciplinary approach focussed on the aims of Bologna Declaration on mobility, efficiency and external attractiveness. The PhD programme included in its teaching staff, experts from different universities and European countries covering molecular, microbiological, clinical, pharmacological, psychological or environmental issues related to infection. The main achievements of the PhD programme consisted of a high number of students who registered in the programme and external attractiveness to Spanish-speaking students from countries benefited by co-operation programmes such as Alban or Carolina scholarships. Limitations of the PhD programme were mainly related to the lack of an English on-line platform addressed to PhD students from other European countries and the limited resources for mobility of students and experts from European countries participating in the PhD programme. The applicability of achievements and difficulties to the present design of PhD programmes will be analysed.

O13: RECENT PhD STUDY SYSTEM AND SOME OPINIONS OF PHD STUDENTS AT JESSENIUS FACULTY OF MEDICINE

J. Staško, K. Javorka, Ľ. Červeňová, T. Balhárek, J. Marcinek, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia

Before 2004, PhD study at Jessenius Faculty of Medicine, Comenius University in Martin (JFM CU) was realized mainly in basic and preclinical medical disciplines. Standard duration of the full-time (FT) PhD study was three years and part-time (PT) PhD study lasted maximally five years.

Recent PhD study at JFM CU is extended also to clinical fields. JFM CU obtained accreditation in seventeen study programmes: anatomy, histology and embryology, biochemistry, medical biophysics, normal and pathologic physiology, pharmacology, clinical pharmacology, pathologic anatomy and forensic medicine, toxicology, internal medicine, surgery, gynecology and obstetrics, pediatrics, dermatovenerology, otorhinolaryngology, urology, nursing and in public health. Standard period of the FT PhD study was centrally (by Ministry of Education) increased to 4 years, for the PT form of the study the duration remains unchanged (5 years). Students in current PhD study are obliged to obtain scheduled number of credits per academic year reflecting research and study activities – with dominancy of the research work and presentations of his/her scientific results in verbal and written form. They must pass through a course of research work methodology, foreign language exam and approximately in the middle time of the study through dissertation exam with two examiners (one is extramural). They finish the PhD study by the defence of thesis. Commission for this defence consists of (minimally) 7 members from different Medical Faculties in Slovakia and 3 reviewers even from abroad (only 1 can be from the JFM CU). PhD students at JFM CU summarized "pros" and "cons" of the PhD study as responders of a special questionnaire.

Conclusions:

a) Advantages of the PhD study: Dominant research work, to be involved to research projects with a possibility to work at Faculty departments and clinics, publication activity, teaching skills. In social conditions - accommodation at student college; b) Disadvantages: status of students without some rights for undergraduate students including missing representation of PhD students in the JFM CU academic senate. The work overloading with standard clinical care.

O14: STANDARDS IN PHD STUDY PROGRAMMES AT FACULTY OF MEDICINE IN HRADEC KRALOVE (CZECH REPUBLIC)

M. Cervinka, Department of Medical Biology and Genetics, Charles University Faculty of Medicine, Hradec Kralove, Czech Republic

Since 1993 our Faculty of Medicine has got accreditation for 20 PhD programmes covering majority of theoretical and clinical subjects. During the past 15 years we have enrolled more than 700 students. From the very beginning we have focused on two important aspects - definition of standards of scientific quality, and harmonisation with national and European standards. The most efficient way to achieve these goals is to increase contacts with other faculties, namely harmonisation of requirements for PhD thesis, obligatory long-term stay of students at the laboratory abroad, enrolment of international students, and organisation of an international conference of PhD students.

The criteria for the quality of PhD thesis are established and maintained. There are also indispensable requirements for permission to defence the thesis (at least three full text research

papers; the student should be the first author in two of them; one articles in a journal with impact factor).

We have some positive achievements also in the field of organization of international students conferences. Since 2004 we have organized every year Medical Postgraduate Conference. For example, last year 37 students from 10 EU countries have presented their results there.

There are several similar conferences organized in other countries as well. We believe it is time to start discussion about harmonisation of these conferences. Our proposal is to establish something like "Association of European PhD Students Conferences in Biomedicine" (under the umbrella of ORPHEUS) and try to coordinate these events.

O15: INTERDISCIPLINARY POSTGRADUATE PROGRAM IN MOLECULAR MEDICINE OF THE UNIVERSITY OF COLOGNE

D.G. Grosskopf-Kroiher, J. Howard and M. Paulsson, Center for Molecular Medicine Cologne (CMMC), IPMM Office, University of Cologne, Cologne, Germany

Since 2003, the Faculty of Medicine and the Faculty of Natural Sciences along with the CMMC has offered an Interdisciplinary Postgraduate Program in Molecular Medicine (IPMM) covering both research and complementary skills. This program is aimed at outstanding research-orientated physicians (after 2nd state examination or equivalent) and life science graduates and is designed to provide project-based training in biomedical research to doctoral candidates from both faculties.

The PhD-students are enrolled in a 3-year experimental research project in an area of biomedicine. This research project is supplemented with an individually tailored study program of obligatory lectures and courses, guest seminars, advanced method courses and workshop as well as scientific soft skill training. The core study program lasts 2 years and consists of 4 hours of lectures, seminars or practical courses per week. In addition to the principal investigator two senior scientists mentor each doctoral student and help to develop and tailor an individual study program according to the pre-existing knowledge and field of interest of the PhD-student. The completion of the IPMM degree requires a positively evaluated doctoral thesis, the completed study program and a successful oral examination. The students are awarded the academic degree of “Doktor der naturwissenschaftlichen Medizin (Dr. nat. med.), equivalent to the Dr. rer. nat or the US/UK PhD degree. In the future an internationally established PhD degree will be introduced.

At present 42 doctoral students are enrolled in this program: 9 doctoral students hold a degree in human medicine, whereas the other 33 students hold a degree in biology or chemistry.

POSTER PRESENTATIONS

P1: IN SEARCH OF EXCELLENCE AND EFFICIENCY IN THE EUROPEAN PHD – A RESEARCH PROJECT

G.L. van Winkel, J.F.M. Sonneveld, C.A. van Bochove and R. Rabbinge, Wageningen University, Wageningen, The Netherlands

There are large differences among PhD studies worldwide, and also within Europe: differences in entrance level, financial and legal status of students, style of supervision, course programme, nominal and actual duration, and requirements for the PhD thesis. The inevitable consequences, e.g. differences in quality (of PhD theses and graduates) and differences in efficiency (time to degree, completion rate), however, are largely unknown. If European higher education wants to be competitive in the global 'battle for the brains' it needs PhD programmes that are attractive to PhD students worldwide.

After twenty years of hands-on experience in research policy and especially in building up a graduate school, the first author is now returning to science and wants to address an important 'design question': What would an excellent and efficient PhD programme look like, and why would such a programme be better than others? The project will focus on the field of natural sciences including biomedicine and health sciences. PhD thesis quality, quality of the PhD graduate, and efficiency of the PhD programme have been studied separately before, worldwide, but never in combination and in relation to the design of the PhD programme. That methodology makes this study unique.

The project will last three years and will consist of two parts: development of indicators for excellence and efficiency by two local case studies, and validation of those indicators by a comparison of PhD programmes in several countries within and outside Europe.

The outcome will be valuable in two ways: 'branding' of the best European PhD programmes for enrolling PhD students, and 'improving' programmes to meet the need of excellent international PhDs.

P2: NETWORKING AT ALL LEVELS – GRADUATE EDUCATION FOR THE LIFE SCIENCES AT THE EUROPEAN MOLECULAR BIOLOGY LABORATORY (EMBL)

H. Hillebrand, Dean of Graduate Studies; European Molecular Biology Laboratory, Meyerhofstrasse 1; 69117 Heidelberg, Germany

The EMBL (European Molecular Biology Laboratory) is one of the top research institutions in the world and a center for interdisciplinary research in the molecular life sciences in Europe. The presentation will provide an overview on structured graduate education as it has been developed and implemented at the EMBL over the last 25 years. Special emphasis will be placed on EMBL's philosophy on graduate education and its implementation for interdisciplinary scientific education in the molecular life sciences. Therefore, the talk will be structured according to the lifecycle of a typical PhD thesis spanning all major steps from recruitment processes up to thesis submission. The underlying processes for each step and the respective tools being in place will be discussed stepwise. The presentation will reflect current developments in the area of complementary skills training for PhD students the curriculum development for which aims at fostering early development of graduate students into successful and independent researchers.Networking at all levels – graduate education for the life sciences at the European

P3: THEMATIC PhD PROGRAMMMES AT THE UCD SCHOOL OF MEDICINE & MEDICAL SCIENCE, DUBLIN, IRELAND.

H.C. Gallagher, M. Clyne, D.C. Shields and C.M. O'Connor, UCD School of Medicine & Medical Science and Conway Institute of Biomolecular & Biomedical Research, University College Dublin, Belfield, Dublin, IRELAND

University College Dublin (UCD) is Ireland's largest university with >20,000 registered undergraduate & postgraduate students. The UCD School of Medicine & Medical Science (UCD SMMS) offers undergraduate degrees in medicine &allied health sciences, a graduate-entry degree in medicine, and a variety of taught and research-based postgraduate courses. Currently, >120 UCD SMMS students are undertaking PhD degrees. Recently, three thematic PhD programmes have been introduced in the UCD SMMS, all of which are designed to give students a strong interdisciplinary training. Students gain 30 ECTS credits by completing in-house taught modules and/or other relevant modules within a flexible modular system. The research project accounts for the remaining required credits (240). In the Thematic Programme in Bioinformatics and Computational Biomedicine, researchers from the UCD SMMS, Mathematical Science, Computer Science/Informatics and Biology, provide students with both numerate & experimental biological research experience and joint inter-disciplinary supervision. In the Translational Medicine Programme, teams of biomedical, clinical and allied health scientists jointly provide advanced training in the translation of research findings into improved disease diagnosis, treatment & prevention. The Thematic Programme in Infection Biology involves basic & clinical researchers in human & veterinary medicine who investigate host-pathogen interactions, emerging infections and infection models. These thematic programmes have proven popular, and the majority of our PhD students have chosen to enroll in one of them.

P4: THE HAMBURG GRADUATE SCHOOL "MOL ENDOCRINOLOGY" AS AN EXAMPLE FOR A MEDICAL PHD PROGRAM

H.J Seitz, SE-Europe Cooperation, Medical Faculty Hamburg – Eppendorf, Germany

The DFG funded with € 2.5 Mio for ten years (1996-2007) a Graduate School "Molecular Endocrinology - Molecular Nutrition". > 100 young medical & biomedical students/graduates from > 7 European countries successfully got there Dr. med. or Dr. rer. nat.
The essentials of the School were:

- Stipends for medical students and graduates for up to 3 years.
- Cooperation of max. 15 scientific groups.
- Intensive lab work & money for consumables.
- An educational program organized by the students, the scientists and a lot of external/international teachers.
- Financed poster presentation on European Meetings
- Bench practica, colloquia with invited guests.
- Internal and external evaluation.

The details and outcomes will be presented and discussed.

P5: QUALITY CONTROL IN THE INTERNATIONAL GRADUATE SCHOOL IN MOLECULAR MEDICINE ULM

M. Kühl and D. Brockmann, International Graduate School in Molecular Medicine Ulm, Ulm University, Ulm

The German federal and state governments established the Excellence Initiative to improve and strengthen the quality of German universities and research institutions in general, thus making Germany more internationally competitive and focusing attention on the outstanding achievements of German universities and the German scientific community. A total of € 1.9 billionen was provided for three funding lines including Graduate Schools to promote young scientists. Since 2007, 39 Graduate Schools are funded by the Excellence Initiative among them the International Graduate School in Molecular Medicine Ulm.

The major aim of our Graduate School is to train doctoral students – natural scientists as well as clinicians – on the highest international standards in the field of experimental biomedicine. To guarantee these standards the Graduate School has implemented several measures among them:

- Each doctoral student is supervised by an individual interdisciplinary Thesis Advisory Committee consisting of scientists from Ulm and abroad.
- Supervisors (Principle Investigators) are selected according their scientific reputation (papers, funding, awards).
- The distribution of funds in the Graduate School strictly follows the rules of the performance-based allocation of resources.
- A PhD-committee and an International and Scientific Advisory Board which includes several members of global pharmaceutical companies
- International accreditation, yearly evaluations by the graduates
- A long term follow up statistic of the alumnis
- A dedicated mentoring programme for all PhD students

P6: INTERDISCIPLINARY INTERACTIVE TEACHING PhD STUDENTS IN IMMUNOBIOLOGY OF TRANSPLANTATIONS

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Faculty of Medicine, Sofia University "St. Kliment Ohridski" and University Hospital "Lozenets", Sofia, Bulgaria and Medical University, Plovdiv, Bulgaria

The interdisciplinary PhD training programme in the Medical Faculty of Sofia University "St. Kliment Ohridski" and University Hospital "Lozenets" is a part of the overall study plan of biomedical PhD students. Optional interactive teaching small groups of medical PhD students both in preclinical and clinical disciplines is developed. The course "Immunobiology of transplantations" is a basic component of the biomedical PhD programme and includes theoretical and clinical modules: 1. Teaching morphology, immunobiology and genetics of transplantations (lectures and experiments with molecular and cell biology techniques), and 2. Teaching surgery techniques (lectures and practice). The interactive approach to PhD study supports and optimizes the individual learning and research activities of biomedical PhD students in an interdisciplinary area of preclinical and clinical research.

P7: NECESSITY OF INNOVATIONS IN THE EDUCATION OF PHD STUDENTS IN MEDICINE AND HEALTH SCIENCES IN BULGARIA

E.P.Tsankova, G.A.Zlateva, L.D.Spassov and M.D.Shishinyova, Faculty of Medicine, University of Sofia "St. Kliment Ohridski", Sofia, Bulgaria and *Vice-Rector of Student Affairs, University of Sofia "St. Kliment Ohridski", Sofia, Bulgaria*

The PhD education system in Bulgaria is based on the individual form of training and research. PhD students should identify their interest in a particular area of research to choose the topic of study to examine the literature on this topic, to make experiments, to receive and process data and to compare their results with existing scientific data and conclusions. In this individual process the young scientists meet with different difficulties, which could lead to failure of the education and they do not finish a thesis within 3 years of training.

Along with traditional programmes, there is a need to introduce some new forms of training for PhD students, for example training programmes and PhD schools. In the Sofia University, there is introducing a new educational programme for PhD students in social sciences and the humanities, including a number of courses, based on innovations, interdisciplinary and actuality, relevant in the modern scientific context. The stimulation of a further motivation and support of young scientists, a need for professional developmental support and professional skills training – research skills and techniques, skills in research environment, management of research, communication skills, teamwork, management of career development etc., requires changes in the programmes for successfully completing the PhD and it is necessary to create suitable courses and for the PhD students in medicine and health sciences.

P8: THE LIVING KNOWLEDGE – DOCTORAL STUDIES AT THE INTERFACE OF BIOLOGY AND MEDICINE

G. Rota and S. Clarke, Doctoral School, Faculty of Biology and Medicine, University of Lausanne, Lausanne, Switzerland

Created in 2003 by the fusion of the Medical Faculty and the Biology section of the Science Faculty, the Faculty of Biology and Medicine built a new Doctoral School. Five years later we have five doctoral paths with over 600 enrolled students.

The doctorate in life sciences offers young scientists, with a master degree in science or medical diploma, the possibility to carry out a personal and original research project in the field of biological, biomedical or public health research (www.unil.ch/fbm/phd-lifesciences). In general, the degree of a doctor in life sciences is obtained after 3 to 4 years. The doctoral student has to carry out original research work and to follow the PhD programme for a total of 12 ECTS. Currently over 290 students are enrolled. The doctoral programme includes tutorials, courses, seminars and conference attendance and covers large fields of biomedical research; specific programmes have been established in ecology and evolution; cardiovascular and metabolism research; and cancer and immunology.

The doctorate in neuroscience is a joint PhD program between the universities of Lausanne and Geneva and is part of the Network of European Neuroscience Schools (NENS). The doctoral student carries out original research and follows a doctoral program, the offer of which ranges from molecular and cellular to cognitive neuroscience.

The doctorate in medicine is reserved for physicians and requires an original research to be carried out by the candidate. The MD-PhD is another specific programme for physicians,

which offers the possibility to prepare the entry into the PhD programme during medical studies and builds bridges with a later academic carrier in clinical medicine.

P9: RESEARCH-BASED LEARNING IN A SMALL GROUP OF BIOMEDICAL PHD STUDENTS: A MODEL TO ENSURE QUALITY

S.M. Janković and N.N. Arsenijević, Medical Faculty, University of Kragujevac, Kragujevac, Serbia

Although PhD studies in biomedicine are mostly centred on research methodology, the students usually find it difficult to design, conduct and report their own research.
The Molecular medicine PhD course at Medical Faculty in Kragujevac included research-based learning during the second year of study. A small group of 8 PhD students worked on joint research project with their Professor, participating in all phases: formulating research question, designing research, conducting the research, statistical analysis of results, writing report in the form of manuscript and submitting it to an international medical journal, indexed at ISI list. The project was tailored according to the available time for its conduct, i.e. 9 months.

The students were highly motivated and took active participation, which resulted with a manuscript accepted for publication. All of the students qualified to be co-authors with their Professor in this publication. On a scale from 1 to 10, each of the eight students marked his/her satisfaction with this teaching method by "ten".

The research-based learning in a small group showed high potential to increase quality of teaching process at biomedical PhD studies.

P10: PROBLEMS CONCERING ORGANISATION OF THE PHD STUDIES AT SMALL MEDICAL FACULTIES

G.D. Nikolic and B.B Asanin, Medical Faculty, University Montenegro, Podgorica, Montenegro

There is special need for organization and manage PhD studies at medical Universities. After graduate most of doctors are going further in education. Beside medical specializations doctoral studies are more frequent among them. Every high medical education training, ménage the departments at the University hospitals need doctors with PhD education degree. In Medicine PhD requires much more than in other professionals.

Small faculties with less than 1000 students have special problems in organization necessary PhD studies. The haven't strong teams of investigators which might be a constructor and leader oh studies, Maybe the topics in that field is question: Concerning the quality control of studies do we organized our PhD studies by our own at our faculty, or we send our students to other faculties to participate doctoral studies?. We believe that none has clear question. Management of medical faculty must keep in mind that PHD study is top study in medical science. Organizing and developing doctoral studies we also give strong support of all kind of medical education including pregraduated, medical specializations and all kind of continual medical education.

Management of small faculty must followed rolls, be in touch with experienced teams from other faculties in practice organizations and leading studies, but most important is permanent quality control and permanent peer revue.

P11: SYSTEM OF RESEARCH STAFF TRAINING IN MOSCOW STATE UNIVERSITY OF MEDICINE AND DENTISTRY

Konstantin G. Gurevich, Ekaterina G. Fabrikant and Solomon A. Rabinovich, Moscow State University of Medicine and Dentistry, Moscow, Russian Federation

The University practices a two-level system of research staff training comprising postgraduate and doctorate training. Postgraduate training includes studying in one of nine branches of knowledge, i.e. medicine, biology, chemistry, pharmacy, psychology, pedagogy, economics, linguistic theory, and history of science and technology. The doctorate programme provides for training in medicine only. Postgraduate training can be full-time (3 years) or part-time (4 years), doctorate training can be full-time only (3 years). Postgraduate training implies preparation for the defence 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 defence, meanwhile the research results have to be published in national and peer-reviewed press.

P12: ESF PROJECT SUPPORTING PhD STUDY

K. Javorka, J. Staško and Ľ. Červeňová, Jessenius Faculty of Medicine, Comenius University (JFMCU), Martin, Slovakia

Call for European Social Fund Projects (ESF) focused to human resources, etc. was published in 2005. The project proposal was accepted and the project at JFMCU was active in the period of December 2006 – October 2008.

The main aim of the project was to create "Centre for Education to the Research Work" at JFMCU. Material support of the Project was given to the Brainstorming Centre for PhD students and to 14 departments and clinics active in PhD training. Each of the full-time (FT) students obtained PC set with a statistical software, etc. and budget for covering costs of material needs for his/her research work.

Financial support was applied also for five scholarships (duration 2 years), travel grants (three months lasting stays to and from EU countries), for awarding the best student´s papers in CC journals (6 prizes), active participation of the undergraduate and PhD students in international conferences (25) and for a support of publications in Acta Medica Martiniana journal.

The young researchers activities and cooperation between them were enhanced by periodical (monthly) brainstormings of the PhD students. Tutors wrote and published the "Principles of the Scientific Work for PhD Students" book and each of the FT PhD students obtained this monograph. Under the auspices of ORPHEUS, an international workshop on PhD study was organized reflecting the positive aspects as well as problems during PhD study existing mainly in clinical disciplines. At the end, Consensus Statement was approved and published (also on the ORPHEUS web site).

The ESF Project had positive effects for PhD study at JFMCU with material, financial and organization support. It resulted in the increase of mobilities, number of new working places for

young researchers and in stimulation of undergraduate and PhD students enthusiasm to the research work.

P13: PROBLEMS IN PhD EDUCATION IN SMALL COUNTRIES OF EAST EUROPE

Taivans I, G. Strazda, Faculty of Medicine, University of Latvia, Riga, Latvia

Small countries of East Europe that previously were under Soviet regimen have relatively less developed scientific research facilities, including the field of medicine. Therefore a doctoral thesis in majority of cases is based on statistical analysis of clinical cases and gives little scientific impact.

In small countries there are only few experts in a particular branch of medicine and they know each other very well. It makes hard the objective expertise of research projects and thesis review.

Some interesting projects on rear diseases cannot be realized because the number of cases in the country is not sufficient to get statistically confident conclusions.

Small countries have restricted research budget and rather poor support for mobility of doctoral students.

The situation could be treated by development of more tight contacts between large scientific centres in developed countries and universities in small countries. Large centers could regularly inform the member universities of ORPHEUS on possibilities to take part in large scientific projects, could invite students to visit educational seminars, to practice in advanced scientific methods, to help in expertise of research projects and revue of completed thesis.

Helpful for the exchange of information could be a newsletter regularly issued by ORPHEUS or regularly updated internet page.

It would be reasonable also to think about establishment of international funding for the advancement of doctoral education in Europe. Fund could advance the mobility of students and support review of research and theses projects.

P14: DEDICATED EDUCATIONAL PORTAL "ECERCDOC" IN ROMANIAN UNIVERSITIES OF MEDICINE, HARMONIZING CURRICULA IN DOCTORAL EDUCATION

P.A. Mircea, R. Badea, A. Buzoianu, C. Piţiş and H. Stefănescu, "Iuliu Haţieaganu" University of Medicine and Pharmacy (UMFCN), Romania

In the context of development of European doctoral system, the project of the UMFCN Doctoral School, «eCercDoc», targets the elaboration of an advanced e-learning system: a formation and research framework for the performance necessary to compete within the competitive environment and for the free movement of ideas and people. The Portal targets the acute problem of doctoral European research – incongruence of formative systems and lack of common development policies.

The project (financed by National Program "Partnerships in major domains") is implemented by a consortium of three prestigious medicine universities, a partner experienced in academic evaluation and an economic partner.

The system supports the high-level doctoral formation through education for modern, transparent and advanced research. Doctoral schools of medicine universities are targeted first. The doctoral consortium will extend in different academic domains. This way, the portal becomes a core for a future pole of excellence doctoral research. The portal offers the ITC framework elaborating the virtual consortium «Doctoral Campus». The collaborative

environment strengthens the international dimension of doctoral programs and research training.

The portal will run advanced services for curricular harmonization, evaluation and monitoring of researches' activities, computer assisted and remote learning, online document management.

The debates in the first three project phases targeted the promoting of experience sharing and dissemination of best practices. Modern communication techniques were used – video-conference system purchased through the project. A first portal version was released.

The portal enables the experience sharing, focusing and increasing of RTD activities at doctoral level. It supports the cooperation between academic and economic partners involved in developing the knowledge based society.

P15: EVALUATION OF THE STUDY RESULTS FOR POSTGRADUATE STUDY PROGRAMS AT SCHOOL OF MEDICINE OSIJEK, CROATIA

I. Drenjancevic-Peric, J. Barbic, A. Vcev, P. Filakovic and A. Tvrdeic, School of Medicine Osijek, University Josip Juraj Strossmayer, Osijek, Croatia

Postgraduate medical education at the School of Medicine University J.J. Strossmayer started in academic year 2000/2001 when Scientific Postgraduate Study in Biomedicine and Health has been established.

In the past, research activities were not necessary conducted via formal scientific projects funded by funding agencies (such as Croatian Ministry of Science, Education and Sports (MSES)) but in more informal ways via mainly clinical research. Due to implementation of Bologna process in Croatian higher education, in 2005/2006 a new Postgraduate Doctoral Study in Biomedicine and Health was introduced. One of the goals of new study program is to increase the number of theses done at the basis of scientific research projects, conducted at the School of Medicine. In 2002-2006, 21 scientific projects were funded by MSES (11 in clinical sciences, 9 in basic medical sciences, and 1 in public health). Since 2007, 28 projects were funded by MSES; 13 clinically based projects, 12 in basic medical studies and 3 projects in public health.

To qualify for a mentor, one has to have academic position at the university and be scientifically active by regularly publishing papers and participating at the scientific projects. Based on these criteria, there are 87 available mentors at the moment, but only 21 were active mentors who published 406 scientific papers in peer-reviewed international and homeland journals in last 3 years.

Since 2000, 365 students have been enrolled in postgraduate programs, 238 in old and 127 in new doctoral program (last are still thought classes and are not evaluated here). 1/3 of students enrolled into old program finished it (53 students with dissertation thesis defence and 14 with MSc thesis defence). 20/53 dissertations and 1/14 masters were results of direct work at the scientific projects (11/20 from clinical and 9/20 are from basic sciences projects). New PhDs published 297 scientific papers in peer-reviewed journals.

P16: Ph.D. TRAINING IN CLINICAL RESEARCH AND Ph.D. THESES BASED ON PUBLISHED PAPERS AT MEDICAL FACULTY UNIVERSITY OF SPLIT

Gamulin S. Committee for doctorate Medical Faculty University of Split, Split, Croatia

In 1999 doctoral training at Medical faculty University of Split started with program Basic and clinical medical sciences with 3 courses: Clinical physiology, Sport medicine, Clinical

medicine. Now there are 3 programs running (http://www2.mefst.hr/): Applied physiology, international Ph.D. study with emphasis on clinical physiology methods, Biology of neoplasia and Evidence based clinical medicine. Clinical epidemiology, professional postgraduate study (in formation) with supplements will enables entrance to Ph.D. degree.

Ph.D. theses can be in two types: monographic, based on investigations proposed in PhD thesis proposal or based on published papers treating a mutual topic. Integration of the papers should give a new scientific contribution. These theses consist of introductory text integrating the papers (no more then 30 pages) and copies of at least 3 papers which make integral whole and were published in CC journals with IF>1 in which the candidate is a e first author; one of the papers must be published within last three years. Requirement for defence of monographic type Ph.D. theses is two papers published in CC journals with IF>1. One of them has to be from the thesis topic with the candidate as the first author or second if the mentor is the first.

Ph.D. programs at Medical faculty Split follow Orpheus recommendations: the programs are highly clinically orientated and requirements for Ph.D. theses defence and Ph.D. theses based on published papers are guarantee for quality of the Ph.D. training and theses.

P17: EASING INTO A RESEARCH-BASED PHD CAREER

Marvin J.-R. Lee, University of Oxford, UK

Many graduate students find the first year of the PhD education an uphill battle, and more often than not, generating data good enough for publications is almost a rare occurrence. This is partly attributed to the lack of proper communication and discussion about the research project with the supervisor at the beginning of a student's PhD career. The Karolinska Institute, Sweden, allows students to interact with group leaders and engage in some form of research preparatory activity as early as their undergraduate years, so that the students have a reasonably sound understanding of the ongoing research work. This paints a good picture to the prospective students of what they will be getting themselves into before embarking on a research career. Additionally, the supervisors will also be able to identify suitable candidates to work in his laboratory. This approach has been widely adopted by many top universities in USA, where undergraduate students are allowed to work in laboratories as research technicians for a nominal allowance throughout the year, creating opportunities to interact with scientists and existing PhD students, and also getting in touch with the science.

Implementing a qualifying test to gauge the standards of the applicants might be a feasible measure to recruit quality students. The parameters of such a test may include data analyses, case studies, paper critique and an informal interview with the supervisor. Of course, such skills could be developed and enhanced during the course of the degree over time. This test merely allows supervisors to assess the aptitude of the potential student.

P18: VISIBILITY OF PHD PROGRAMS IN BIOMEDICINE AND HEALTH SCIENCES IN THE EUROPEAN REGION

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Europe is undergoing reforms of higher education intending equivalence of degrees and mobility of students, teachers, and scientists what requires transparent structure of PhD programs and availability of information.

In order to encompass as many PhD programs as possible, we pooled together three existing lists of schools (Databases of Medical Schools of Institute for International Medical Education, Geneva Foundation for Medical Education and Research, Orpheus Database of European PhD programmes). We checked carefully their web addresses and extended a list by additional schools found by Google search.

There were more than 540 institutions across 50 countries in the European region. Out of that number 499 institutions have their own web pages, 206 of them (41%) have pages in English. We were not able to understand language of 230 institutional web sites and out of remaining 269 institutions we confirm existence of PhD program at 203 (75%). Only 50% of them offer information about admission criteria, description of study program and acceptance of foreign students but some still miss detailed information about courses and tutorial fees. Most web sites offer insufficient information about the duration of study, requirements for dissertation, possibilities of grants and study in English.

Although international visibility of PhD programs is a requirement for mobility and harmonisation it is still insufficient.

P19: LEARNING THE ART OF RESEARCH

B. Emanuele, Department of Neurological and Visual Sciences, University of Verona, Italy

The PhD Program, introduced in Italy in 1980, is the third and highest level of Italian academic education. From my personal point of view, a PhD Program in Health Sciences does not only help to achieve the highest level of expertise in a specific field, but also allows to develop a set of cross-cutting skills. Doing research is an art. The educational process of the art of research is learning by doing, and should allow the development of psychosocial skills, such as independence, flexibility, self-confidence, time management. The student should be an expert in the field of choice, and able to plan and conduct research, within and outside academia, as well as manage human and economic resources.

For these reasons, I strongly support the notion of stringent requirements for completing Health Science Doctoral Programs throughout Europe. Such requirements should include: obtaining scientific results (i.e., peer-reviewed scientific publications, invited talks, international mobility), teaching experience, and developing psychosocial skills. Attaining such goals requires strategies that are not necessarily in place everywhere in Europe: basic courses (Statistics, Biology, etc); support for students (two or three-member supervisory teams); training supervisors in teaching the art of research; effective monitoring of the student's progress through regular meetings; good work environment: access to computers, library, laboratory equipment, support from staff, fun; establishing a climate of debate and discussion among peers (e.g. Journal Clubs); ensuring the continuity of work through research grants or contracts. PhD students should be put in the position of being competitive in public and private sectors.

P20: TO TRAIN SCIENTISTS STRONG IN TRANSLATIONAL RESEARCH

Zhongwei Huang, Nuffield Department of Obstetrics & Gynaecology, University of Oxford, United Kingdom

Traditional research tends to adopt a purely scientific approach but often neglect the practicability in the real applied world. Translational research emphasises on bringing questions from the bedside to the bench and back to the bedside with answers for clinical utilization.

For biomedicine and health sciences, the ultimate aim of research, and hence PhD education in the discipline, is to unravel the aetiologies and pathogenesis of human diseases; in the process, to discover new ways or improvements to diagnose, prevent and treat diseases which plagued the human race.

The emphasis on translational research in PhD education is proposed. It should allow an individual to acquire skills to target questions arising from the management of patients, translating them into investigations employing sound and rigorous scientific principles, with the outcome having a significant practical impact on the management of patients. This could be achieved by introducing clinical exposure in the form of clinical work for clinicians and clinical sessions for non-clinicians in areas pertinent to their projects during the PhD training, in addition to acquisition of foundational research skills.

To ensure the success of the PhD programme in biomedicine and health sciences, close collaboration with various academic institutions and their affiliated hospitals including bioethical and medical regulatory bodies would be necessary to support the clinical training required and the access to materials pertinent for the PhD candidates' research projects.

P21: OPPORTUNITIES AND CHALLENGES – THINKINGS ABOUT PHD PROGRAMME IN EUROPE

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What opportunities will a well-organized PHD programme offer and what I can learn from it? This question instinctively comes to students' mind when they seek for opportunities to study the doctoral degree. A comprehensive PHD programme would provide both opportunities and challenges to its determined students:

1. In the first year, students may be required to attend well-structured lecture series, which provide broad education in biomedicine. Also, laboratory rotation, which allows students to undertake one or two extended projects in the different laboratories, may give them opportunities to gain hands-on experiences of wide range of research techniques, as well as to explore potential research topics for their doctoral projects;
2. At the end of the first year, a qualification procedure may be implemented to ensure the successful completion of the PHD program in the due course. It could include evaluation of a student's capability to continue study, or/and an independent assessment of the feasibility of a student's proposed projects;
3. The PHD programme provides skill training courses to carter for a wide range of individuals' needs, such as teaching skills, communication/presentation skills, writing skills, project management skills;
4. Encourage students to initiate collaborative projects to bridge clinical practice and scientific research.

P22: AN INTEGRATED GRADUATE SCHOOL BASED ON DIVERSE GRADUATE PROGRAMMES

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The Aarhus Graduate School of Health Sciences is based on a tradition of providing quality postgraduate courses started in the 1970s. The School has currently almost 500 PhD students enrolled, with over 150 being enrolled each year. The Graduate School is part of the Faculty of Health Sciences, and is divided into eleven graduate programmes. The clinical faculty members have joint appointments in the Aarhus University Hospital. The Faculty has a total of about 400 professors and associate professors.

The Aarhus Graduate School of Health Sciences provides PhD training in all aspects of health sciences and covers the whole range of health sciences research, from basic research to the clinic. The integrated approach ensures that the overall aim of improving patient health care is obtained in a multidisciplinary manner without fragmentation of the research training process.

The Graduate School is directed by a Head and a co-Head of PhD studies who are responsible to the Dean of the Faculty. The Heads work with the PhD administrator and the staff of the PhD office. The Heads follow the progress of each individual PhD student through half-yearly reports. The Graduate School holds about 80 courses each year, of which some are core courses taken by all PhD students, while the majority of courses are elective taken according to the needs of the particular PhD student.

Half the PhD students have a medical master's degree, the remainder having backgrounds in e.g. natural sciences, dentistry, nursing, psychology, engineering, and political sciences. About 10% of the students have an academic degree from another country than Denmark. The PhD stipends are normally at the level of a junior academic salary. Financial support is in part through Faculty grants, but most PhD projects have external funding.

P23: EFFECTIVENESS OF PHD PROGRAMMES IN BIOMEDICINE AND HEALTH SCIENCES IN KAUNAS UNIVERSITY OF MEDICINE, LITHUANIA

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The Kaunas University of Medicine (KUM) offers a choice of 7 PhD programmes related to biomedicine and health sciences: medicine, odontology, pharmacy, nursing, public health, biology, biophysics. The institutional structures in support of PhD programmes cover all sectors of the university, are effective and are suited to planned developments. Procedures connected with PhD programme's performance are in place for assurance of standards and quality, including periodic reviews that focus on studies and research activities, periodic satisfactions surveys of research students, the compilation and publication of completion times and rates.
Every year total number of about 50-60 students enrol into the PhD studies in KUM in different programs. Yearly number of PhD students is about 220. According to our statistics, about 50 % of PhD students choose programme of medicine. The completion effectiveness rate of doctoral studies in KUM is more than 80% during the recent 5 years. 82, 6 % of PhDs that have completed their studies and successfully have been awarded with doctoral degree were employed in KUM and its institutions as educators and researchers.

P24: CRITERIA FOR PHD IN PUBLIC HEALTH: A EUROPEAN APPROACH FOR INTERDISCIPLINARY DOCTORATES

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Background: Public Health is traditionally a postgraduate discipline; trainees usually come from different fields as Public Health used to be a subject based on very different basic trainings (medicine, social sciences, economics etc.).

Aims: To define minimal common standards for European Doctorate in Public Health to enable interdisciplinary and internationally recognized training possibilities for doctoral students in Public Health.

Methods: the network elaborated a questionnaire for ASPHER member schools to get an overview on standards used and to test reactions on a proposal of minimal common standards.

Results: The following statements show the proposed minimal common standards. Results of the survey are not yet available, but the standards should be discussed at the conference and the acceptance of doctorates in disciplines other than those studied in pregraduate training ought to be discussed.

1. Doctoral committee guides student (supervisor, co-referee, international experts)
2. Academic training in formal courses of at least 12 ETCS during PhD at PhD level and 25 ECTS on advanced level (after Bologna Master).
3. First year assessment and decision about continuation of PhD.
4. Annual meeting of doctoral committee to discuss progress
5. Thesis encompasses in general 3 to 5 peer-reviewed articles; at least 2 articles are accepted; student needs to be first author of at least 2 scientific papers.

P25: FOLLOW-UP OF THE CROATIAN NATIONAL REPORT SUBMITTED AT THE HELSINKI ORPHEUS 2007 CONFERENCE

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This is the first follow-up of the national report submitted at the Third ORPHEUS 2007 Conference: European PhD Programmes in Clinical Medicine, on the state of PhD programmes in Croatia. In Helsinki, we presented the effects of the first two conferences, especially of the Zagreb Declaration, on the PhD studies in the field of biomedicine and health in Croatia. Analysing the past we found that in the last decade, to our disappointment, 75 % of the theses did not result in any published scientific paper. After the first two ORPHEUS conferences and the agreements settled at the two symposiums in the Croatian Academy of Science and Arts, all four medical schools in Croatia accepted the Zagreb Declaration recommendations, making it impossible to obtain a PhD degree without having scientific papers published. The data from the Zagreb Medical School presented for the first time in this text show that above criteria led to a certain decrease in the total number of PhD theses, but a rising trend is evident in the number of theses based on the previously published three scientific papers in internationally recognised journals. However, because of the interest of PhD candidates in the PhD programmes was higher than the availability of competent mentors, etc., a number of young people are not able to complete the thesis according to the new, more rigorous criteria. At the same time, the demand for PhD holders and new faculty has increased because the "old baby boom generation" is

stepping down and there are not enough established young leaders to take their place. Consequently, the schools are burdened with the growing responsibility of balancing between the demands of increasing the quality of PhD theses and vigorous faculty renewal expected in the coming years.

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