CHarME
Challenges of Harmonising Medical Education in Europe

Challenges of Harmonising Medical Education in Europe:

The CHarME Project

www.charite.de

We would like to thank all project partners for making this project possible, and for their work on this final brochure. We express special thanks to Prof. Claire Le Jeunne for the first draft of this brochure.

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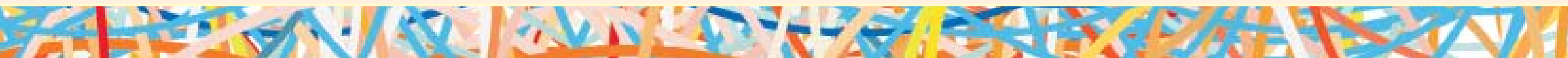


The CharME project was undertaken with the support of the European Community and took place between October 2008 and November 2010.

Why This Project?

The Bologna Process and the Lisbon Strategy have swept across Europe igniting new medical teaching reforms in universities and medical schools alike. The result is a clear and determined need for harmonising medical education in order to promote mobility. Through the Bologna declaration the European Union aims to establish a European Higher Education Area (EHEA) that increases international competitiveness and the attraction of higher education (HE) institutions in Europe. The declaration also aims to facilitate and increase student mobility, to strengthen quality assurance and to promote curricular development, institutional cooperation and integrated programmes.
The concept of establishing a European Higher Education Area by 2010 has been an issue of concern to all players in this field. However, in medical education the introduction of the Bologna process has been a time consuming procedure when compared with other higher education fields. In most European countries, medical education takes place over a period of six years and is considered completed when the candidate passes a licensing examination. As a result, some universities found that splitting the curriculum into Bachelor and Master courses seemed artificial, possibly even unnecessary and inappropriate for the medical profession.

However, although curricula differ extensively, many medical faculties participate in the ERASMUS programme. Teachers and students alike are aware that these differences and very real obstacles for mobility must be addressed and efforts and initiatives are being made to improve this situation.

This project is the result of such an effort and was initiated by the Charité International Cooperation, the International Office of the Charité Universitätsmedizin Berlin. Project partners were recruited from a circle of ERASMUS partner universities. In order to stress the heterogeneity of the context of the project and the resulting difficulties involved in achieving a EAHE and the premises of the Bologna Declaration, partners were chosen who represented different cultural areas and educational approaches.

In addition to the university partners, three other organizations played an active role in the project: The European Centre for Strategic Management of Universities (ESMU) and the European Union of Medical Specialists (UEMS) who both provided expertise for the benchmarking exercise. In addition the German Medical Students‘ Association (BVMD) conducted a survey on student mobility which contributed greatly to the project results.

Partners

Charité Universitätsmedizin Berlin - Germany
European Centre for Strategic Management of Universities (ESMU), Brussels - Belgium
University of Antwerp, Antwerp - Belgium
University of Leiden Medical Center, Leiden – The Netherlands
Université René Descartes, Faculté de Médecine, Paris - France
Università Cattolica di Sacro Cuore, Rome - Italy
Karolinska Institutet, Stockholm - Sweden
Semmelweis University, Budapest - Hungary
Basel University Faculty of Medicine, Basel - Switzerland
German Medical Students‘ Association, Bonn – Germany
European Union of Medical Specialists, Brussels - Belgium

Karolinska Institutet, Stockholm - Sweden

Charité Universitätsmedizin Berlin - Germany

University of Leiden Medical Center, Leiden – The Netherlands

University of Antwerp, Antwerp - Belgium

European Centre for Strategic Management of Universities,
Brussels - Belgium

European Union of Medical Specialists, Brussels - Belgium

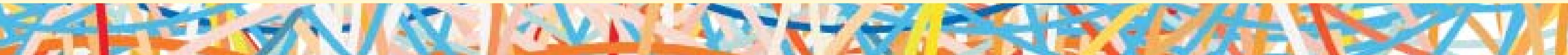
Université René Descartes, Faculté de Médecine, Paris - France

German Medical Students' Association, Bonn – Germany

Basel University Faculty of Medicine, Basel - Switzerland

Semmelweis University, Budapest - Hungary

Università Cattolica di Sacro Cuore, Rome - Italy



Two initial informal meetings enabled partners to get to know each other and to define the project direction and aims. At this point partners agreed to work on developing joint strategies for the modernisation of the medical curriculum. Here the main aim was to make the curriculum more transparent, more comparable, more compatible and more responsive to the needs of the 21st century labour market and European society in general.

The ultimate aim of the partnership was the creation of a community of medical educators to enable stakeholder dialogue in addition to good practice sharing, curricular innovation, promotion of curricular enhancement and the general modernisation of medical education.

On completion the project was submitted to the European higher education "Lifelong Learning Programme" which supports multilateral projects and modernisation of Higher Education Institutes.

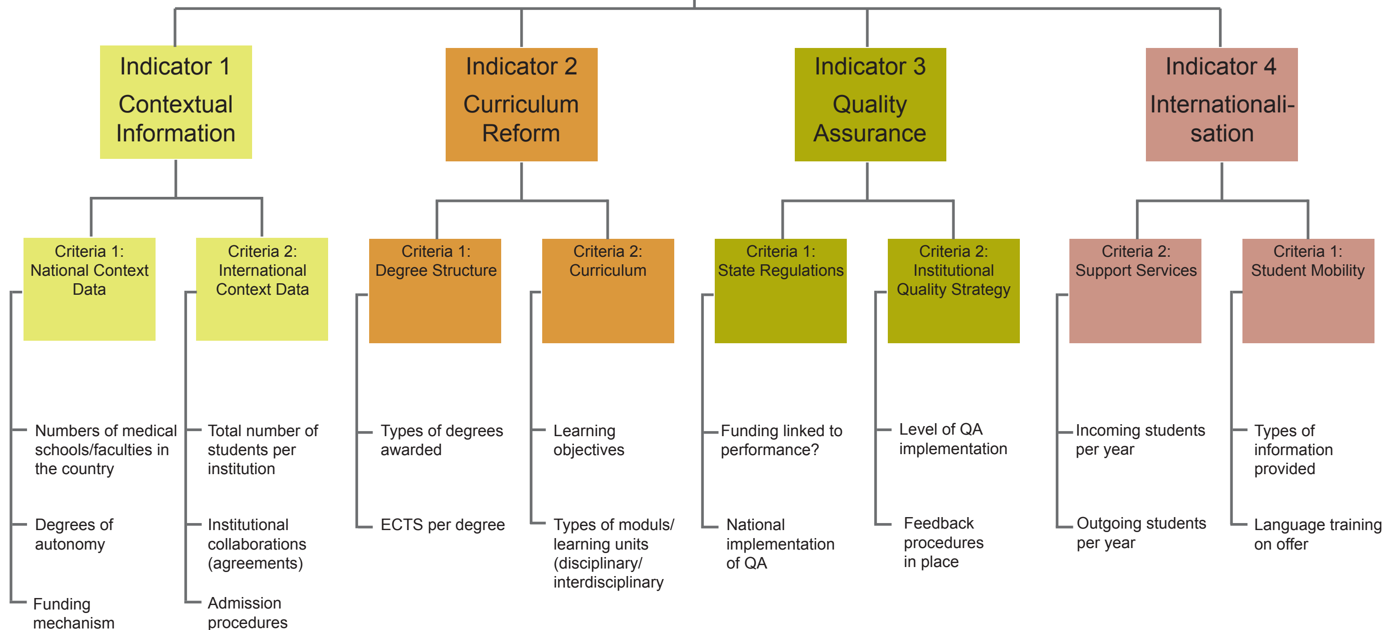
Members of the Steering Committee of the CHarME Project

Methodology

Several techniques for comparing partner universities/medical schools were employed. This was particularly important as new questions and issues became apparent during the course of the project. Eventually the entire project was divided in three parts. The first and main part was a benchmarking exercise.

It was decided that the comparison between the medical schools could be achieved with the help of a benchmarking exercise. “Benchmarking is a process whereby an organisation gathers data on its own performance in a defined area of priority and compares this to the performance of its partners or against a generally accepted standard of excellence in the sector.”[1] In the absence of an absolute gold standard concerning European medical education, it seemed that such a benchmarking exercise would be most appropriate for the CHarME project. Up to this point such a benchmarking method was a relatively uncommon method of assessing and comparing medical education. However in the field of socio-economic projects it is a fairly common strategy. Assistance for the benchmarking methodology was provided by the European Centre for Strategic Management of Universities (ESMU). With the help of project partners the Charité developed a benchmarking questionnaire containing the quantitative and qualitative data we wished to compare. The analysis of the gathered data became the essential contents of the final report.

[1] Dr. Christiane Gaehtgens

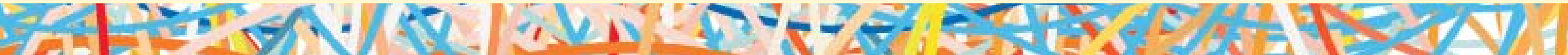


Benchmarking Domain:
Teaching and Learning
Indicator 1
Contextual Information
Indicator 2
Curriculum Reform
Indicator 3
Quality Assurance
Indicator 4
Internationali-sation
Criteria 1:
National Context Data
Criteria 2:
International Context Data
Criteria 1:
Degree Structure
Criteria 2:
Curriculum
Criteria 1:
State Regulations
Criteria 2:
Institutional Quality Strategy
Criteria 2:
Support Services
Criteria 1:
Student Mobility
Numbers of medical schools/faculties in the country
Degrees of autonomy
Funding mechanism
Total number of students per institution
Institutional collaborations (agreements)
Admission procedures
Types of degrees awarded
ECTS per degree
Learning objectives
Types of moduls/ learning units (disciplinary/ interdisciplinary
Funding linked to performance?
National implementation of QA
Level of QA implementation
Feedback procedures in place
Incoming students per year
Outgoing students per year
Types of information provided
Language training on offer

The benchmarking exercise was process orientated. Our aim was to learn from each other in order to facilitate increased cooperation and to improve structural compatibility thus promoting further mobility. The resulting questionnaire was thus drafted by the Charité and developed and completed by the project partners.

The questionnaire includes ten sections:

1 Demographics/Medical School Details
2 Criteria for Admission
3 Form of Course-Length/-Structure
4 Curriculum and Curriculum Teaching
5 Exams and Licensing
6 Quality Assurance
7 Defining Learning Objectives
8 Internationalisation
9 Examination Results / The Medical Profession
10 The Bologna Process - Level of Application



Benchmarking Steps: Identifying Benchmarks and Targets

Source: Dr. Christiane Gaehtgens

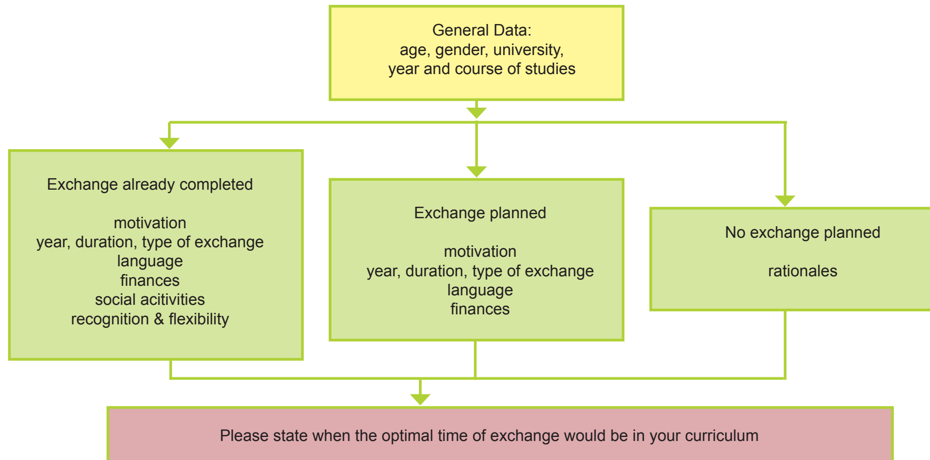
During the data gathering process it soon became apparent that different conditions in the various universities/medical schools as well as the different comprehension of the questionnaire wording meant that some clarification and adjustments to the questionnaire became necessary. Cultural and historical evolutionary processes that have influenced the curricula and medical teaching had to be considered and this lead to ongoing adaptions. This process was successfully completed.

In the process of answering the questionnaire and undertaking our benchmarking exercise it became apparent that two major aspects had to be investigated more deeply:

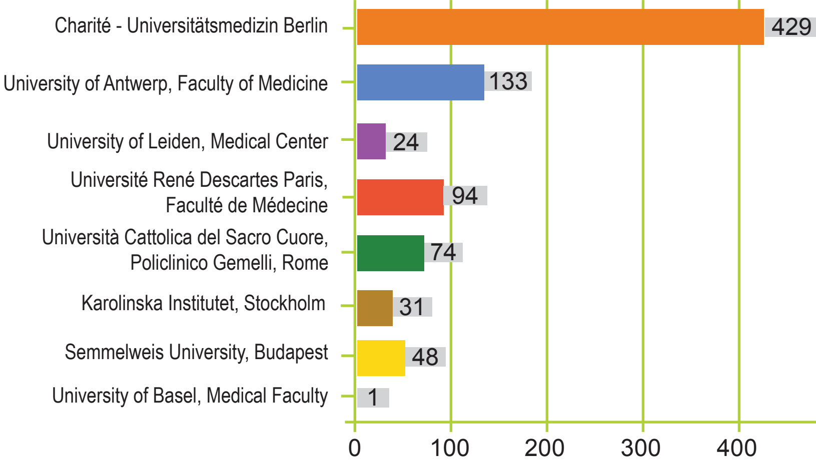
Student Mobility

In order to find out more about the motivations, obstacles and the time windows for student mobility during studies the German Medical Students' Association devised a specific questionnaire providing information on student mobility. The international offices of the partner universities sent out this questionnaire to their medical school students.

Questionnaire Design



Responses per University



Total responses	834
Male	317 [37.9%]
Female	517 [61.9%]
Age	23 +/- 3 years

Curriculum Mapping

As the project continued and partner curriculum differences became more apparent a third exercise focusing on curriculum comparison became important. As a result the Charité Universitätsmedizin Berlin drafted a ”curriculum grid” which project partners completed. This provided partners with an easily readable tool for identifying mobility windows to facilitate exchange. Examples of such grids and charts can be found in the “Results” section of this brochure.

CHarME Curriculum Mapping

Learn more about the curricula of the partner faculties

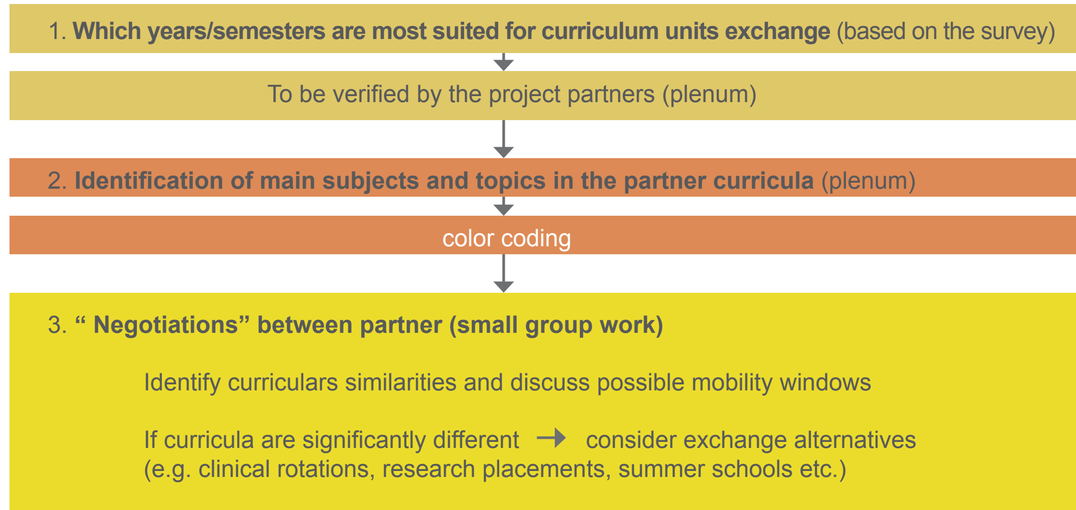
1. Identify similarities - Differences - Good practices
2. Enable curricula comparisons
3. Establish transparency for mutual trust and curricular recognition

Facilitate mobility by drafting a definition of mobility windows

What do we need to achieve these goals?

Easily readable curriculum grids for all partners

Curriculum Mapping Exercise



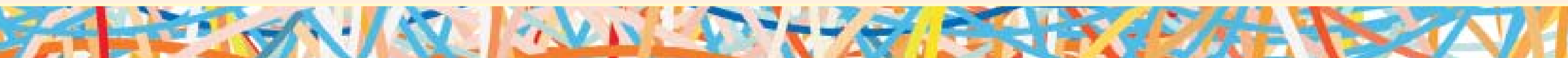
Results

The Benchmarking Exercise

The benchmarking exercise became a process oriented exercise which was comparative - but not competitive - in nature and which focused on good practice and mutual learning. All figures and data were gathered in 2009.

Demographic Data

When assessing demographic data the size of a particular country is of course of particular relevance. Despite this we found that the number of doctors per 100,000 inhabitants varies between 237 and 617 in project partner countries. The ratio of general practitioners to specialists was weighted towards specialists in Hungary and Germany whereas in France and Belgium we recorded numbers that were approximately equal. The student to teaching staff ratio in the partner medical schools/faculties varied between 2.4/1 and 12/1.
When examining the regulation of medical education it was apparent that all responding medical schools/faculties depend on national regulation of medical education though elements of state, university and faculty regulation were also clearly evident. In addition we found out that most of the partner medical schools/faculties in a particular country work as independent institutions but some countries such as France and the Netherlands have collaborative meetings at senior levels.



Admissions

Admission to the medical programmes of partner medical schools/faculties are commonly decided on the basis of exams taken before the start of medical education. Only two medical schools/faculties have further admission exams during their programmes. These include UFR Paris Descartes which has relevant exams at the end of year 1 and the Università Cattolica di Sacro Cuore Rome which has relevant exams at the end of years 2 and 3. However, these exams mostly apply to transferring students. Leiden University Medical Centre is the only school where a lottery system is employed to select students.

Length, Structure and Form of the Medical Curriculum

The required length of study for a primary medical qualification is six years. The only exceptions to this rule apply to the Karolinska Institutet in Stockholm where studies last for a minimum of five and a half years, and in Belgium where studies take a minimum of seven years. The responding medical schools/faculties are almost equally divided between a Bachelor/Master programme structure and a preclinical/clinical format. The majority of the partner medical schools/faculties offer programmes that are partly or wholly integrated.

The partner medical schools/faculties offer clinical learning opportunities which take place in between 2 and 50 affiliated hospitals.

Traditionally at least the final medical exams are organized as state exams. However, systems that employ national exams can be found within both preclinical/clinical and Bachelor/Master structures.

For all the participating medical schools/faculties the learning objectives for medical curricula are determined externally and this predominately at a national level. Only in Belgium (Flanders) are learning objectives defined at state level. Further learning objectives are determined at university or faculty level at all schools/faculties involved in the project.

Curriculum and Teaching

It was soon evident that there are a number of similarities between the partner medical programmes, however all medical schools/faculties have to work within a national regulatory framework which affect content and structure.
Methods of medical curriculum design are varied. Seven of the partnership medical schools/faculties analyse existing curricula to initiate design and three of the partner medical schools/faculties follow examples from innovative teaching methods. In all of the medical schools/faculties political decisions have an impact on curricular design. Three medical schools/faculties undertake task analysis of established practitioners. Only one school seeks feedback from graduates.

Medical teaching methods at partnership medical schools/faculties vary. Here responses describing teaching and learning activities requires further clarification. However, what can be inferred is that a lecture format is employed to deliver 30-55% of the curriculum by all responders, small group work in the form of seminars, problem oriented learning, or assignments is employed by five medical schools/faculties and case studies are employed in six medical schools/faculties mostly in the later part of the programme. Bedside teaching is delivered by all schools/faculties and forms a significant part of the

programme at the Semmelweis University Budapest and Paris Descartes. Only the Charité Berlin, Rome and Leiden offer some e-learning components. Research components are integrated into six of the Medical Programmes.

Exams and Licensing

In six of the partner medical schools/faculties the state governs assessment of medical education with a more or less significant overlap of faculty and school exam systems. In the cases of all the medical schools/faculties involved (with the exception of UFR Paris Descartes) a license is required after obtaining a primary medical qualification. This can be granted on a national or federal level or both. Prior to practising as a doctor further specialisation is necessary with the exception of Italy, where work experience is required. The title awarded to graduates is in most cases “Doctor”. However at Basel University Medical Faculty and the University of Antwerp the titles “Master of Medicine” and “Master of Medical Science” are respectively used.

Quality Assurance

With the exception of the Charité Berlin and the Università Cattolica di Sacro Cuore all the partner medical schools/faculties have official medical school quality assurance policies. Regular course evaluations are carried out by all partners and these are openly published. The exception here

applies to the University of Antwerp and the Università Cattolica di Sacro Cuore who do not publish their evaluation results. In four of the partner medical schools/faculties namely Leiden University Medical Centre, Università Cattolica di Sacro Cuore, the University of Antwerp and the Semmelweis University Budapest allocation of funds to medical schools/faculties is dependent on successful exam performance.

Learning Objectives

The learning objectives of medical programmes of all participating medical schools/faculties are determined externally predominantly on a national level. In Antwerp however learning objectives are decided at state level. In addition learning objectives may also be influenced at university or faculty level which was the case in all the partner medical schools/faculties.

The summary of curricular content listed below can be found in the medical teaching programmes of all partnership medical schools/faculties:

- Basic knowledge on body functions and psychological human wellbeing
- Basic knowledge about disease and illness

- Basic knowledge necessary for diagnostics, treatment, prevention and rehabilitation of patients
- Practical experience in contact with patients
- The ability to recognize and evaluate issues in health economics with regards to patient treatment
- Basic knowledge about the influence of family, society and the environment on health issues
- Historical and ethical issues regarding responsibility and behavior as a doctor

Internationalisation

All of the partner medical schools/faculties are involved in international student exchange programmes. All partners except Leiden University Medical Centre take part in the ERASMUS programme. University funding for exchange programmes is available for all medical schools/faculties. In the case of Leiden University Medical Centre the faculty also provides financial subsidies. National financial subsidies are available in all partnership countries other than in the Netherlands. There are also numerous other trusts and scholarships available to particular medical schools/faculties.
With the exception of accommodation and travel the partnership medical schools/faculties generally provided information and assistance to both incoming and outgoing exchange students. Slightly less information and assistance is provided for incoming students. Information provided covers the following tools: Printed study aids, information sessions, exchange application, exchange organisation, prior coaching and follow-up assessments.

Results concerning the future of medical graduates have proven more difficult to ascertain. Students

are well documented whilst at medical school but on completion of their training it is difficult to establish the real number of those actually working as medical practitioners or entering the health care system. However it could be seen that the number of qualified doctors who do not work as physicians in Germany for example is quite high.

Bologna

A system of easily readable and comparable degrees has been fully (three medical schools/faculties) or partially (three medical schools/faculties) implemented. A system based on two cycles has been fully implemented at Basel, Antwerp and Leiden. Such a system has been partially implemented in Paris and at the Karolinska Institutet Stockholm. The Charité Berlin aims to implement such a system. Semmelweis University Budapest and the Università Cattolica di Sacro Cuore do not plan to implement the two-cycle structure.

A credit system has been fully implemented in the majority of the partner medical schools/faculties with the Charité Berlin offering a partially implemented system. In Germany ECTS credits are not mentioned in licensing regulations and therefore implementation of credits has only been partially successful in German medical schools. UFR Paris has a partially implemented system for foreign students. All the partner medical schools/faculties fully or partially promote student mobility.

Student Survey Results

The student survey received 834 answers. 517 of these were from females and 317 were from males. The average age of students responding to the survey was 23 ± 3 years. 60% of students had not yet been abroad for their studies. Amongst those who had already been abroad 65% stated that they went abroad on practical training electives whilst the remainder spent their time abroad attending curriculum units or research exchanges. The average period for international exchange was four months however, Italian and French students tended to go abroad for a longer time period. Students from Paris, Rome, Leiden and Stockholm found daily life to be cheaper in the country that they visited. The reverse is true for the remaining countries. Half of the students found no problems adapting to curriculum teaching and assessment systems offered in the country that they visited. For the majority of students the main reason for going abroad was to learn or improve foreign language skills, followed by the cultural experience that living abroad presents. The least popular reason (out of 10) for going abroad was the change of climate. The main reason for students not wanting to spend time abroad was the wish not to delay studies, the second reason related to the financial burden associated with studying abroad.

Motivations for Undertaking Study Exchange (Ranked priority, N = 281)

Highest

1. Learn and/or improve foreign language skills
2. Gaining cultural experiences
3. Getting to know new people
4. Understanding how other health care systems work
5. A longing to travel
6. Learn about different curricula
7. Visiting a centre of expertise for specific research topic
8. Change of climate

Lowest

Obstacles Preventing Exchange (N = 101, multiple answers possible)

Highest

Lowest

1. Study delay is undesirable [53, 21.5%]
2. Financial burden of an exchange is too high [52, 21.1%]
3. Too much effort to organize exchange [50, 20.3%]
4. Concern about language barrier [41, 16.7%]
5. Concern about recognition of academic credits acquired abroad [23, 9.3%]
6. Concern that education abroad is not as good as at the home medical faculty [15, 6.1%]
7. Concern that one cannot meet the expectations of the medical curriculum in the exchange country [12, 4.9%]

Best Time Windows for Curriculum Unit Exchange

Partner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Absolute numbers
Berlin	1.7	2.1	2.7	2.3	12.1	16.7	18.5	16.0	11.6	8.1	3.1	2.7	1.2	1.2	956
Antwerp	2.7	2.9	6.7	7.5	9.9	10.2	15.8	15.8	13.9	11.3	1.1	1.1	0.5	0.5	373
Leiden	-	10.3	13.8	13.8	8.5	10.3	5.2	10.3	5.2	5.2	1.7	5.2	3.4	6.9	58
Paris	1.2	3.1	11.8	3.7	18.6	18.6	8.7	7.5	6.2	3.7	1.9	1.2	1.9	1.9	161
Rome	6.2	6.2	10.3	8.3	9.7	10.3	10.3	10.3	6.9	8.3	4.8	4.8	2.1	1.4	145
Stockholm	2.5	4.9	11.1	12.3	7.4	8.6	8.6	8.6	11.6	8.6	9.9	2.5	2.1	2.5	81
Budapest	4.2	5.1	7.6	6.8	8.5	1.0	12.7	13.6	13.6	12.7	1.7	2.5	-	-	118

%

Problems Associated with Recognition of Credits Acquired Abroad

Responses %	Berlin	Antwerp	Leiden	Paris	Rome	Stockholm	Budapest	Average
No recognition at all	5	0	20	7	3	8	0	6
Only parts were recognized	17	0	0	33	17	0	37	15
Grade was not recognized	15	0	0	0	0	0	11	4
Full recognition	58	85	80	48	72	92	32	67
Absolute numbers	208	31	5	49	56	19	28	468

The Curriculum Mapping Exercise

As part of the evaluation process we drafted a colour coded curriculum chart in which a code was chosen to represent each medical speciality/topic. In this way we could ascertain which curricula were more traditional, which were interdisciplinary and which were mainly based on organ system courses. The chart provides an optimal visual reference and details at which point teaching of particular subjects/modules take place. This in turn enabled us to define optimal mobility windows for exchanges. Practical usage of this curriculum mapping is described on our project website www.charite.de/charme.

Colour Coding

- Oncology, Oncosurgery, Haematology
- Dermatology, Dermatosurgery
- Cardiovascular System, Respiratory System, Pneumology, Angiology, Thoracic Surgery etc.
- Nephrology, Urology
- Gastrointestinal System
- Endocrinology, Reproductive Medicine
- Emergency Medicine, Anesthesiology
- Muscolo-Sceletal System, Orthopedics, Traumasurgery
- Hygiene, Microbiology, Immunology
- Family Medicine, General Medicine
- Neurology, Neurosurgery

Example

P1		Charité - Universitätsmedizin Berlin		Germany	

Courses offered: Every Semester

Academic calender: Winter term: October - March; Summer term: April - September

Year	Semester	Term	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	PC	Propaedeutics and systematic introduction														
				General anatomy [1.5]						General cytology, histology [5]							
				Medical terminology [1.5]													

…

Year	Semester	Term	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					…biology, virology I [6]			…med. Ia [2]		Internal medicine haematology, rheumatology [3]			Oncosurgery [2]				Exams
							Medical Imaging, radiation therapy, radiation safety [4]										
										Pathology & linking clinic and pathol.: immuno & heamtol. syst. [7]							
									Clinical chemistry lab diagnostics [4,5]			Psycho-somatic med. I [0.5					
4	7	CL	Cardiovascular, respiratory, nephrologic, digestive, urogenital, endocrinology system														
			Internal medicine: cardiovascular, respiratory, nephrology, digestive, urogenital, endocrinology system [8]														Exams
			Surgery: visceral, cardiovascular, thoracic [3]								Anesthesiology [3]				Emerg. med. Ib [2]		
			Pathology & linking clinic and pathology: cardio-, pulmo-, nephro-, digestive-, endocrinology, urogenital tract [3]												Medical imaging, radiation ther. [1]		
			Clin. pharmacology [1]			Rehab. …	Clin. chemistry & lab. diagnost. …		Hygiene, microbiol. …								
			Infectious diseases, Immunol…														

…

Year	Semester	Term	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			Clinical and scientific basics III														
			…Med. [2]	…[2]	…tics [2]	…cology [2]	…Medicine [2]	…Medicine II [5]	Environ-mental Medicine [1]	Elective subject [14]							Exams
6	11	CL	Practial Year [30]														
			full-time internship in a hospital: 4 months of Surgery, 4 months of Internal Medicine, 4 months of an elective subject														
6	12	CL	Practial Year [30]														
			full-time internship in a hospital: 4 months of Surgery, 4 months of Internal Medicine, 4 months of an elective subject														
			Licensing Exam in Medicine - Part II														

Discussion

The data gained from the questionnaire provided a wealth of information on which to base future curricular innovation. The partnership as a community of curricular innovators will certainly be able to capitalise on this data for active future collaborative medical education research.

However, the project did encounter some significant obstacles. As a result not all aims could be fully achieved. Obstacles encountered include:

- Incompatibility of quantitative data due to differences in context: These include national legislation, differences in higher education systems and variations in healthcare and training regulations.

- Inconsistencies in terminology and understanding, for example this is the case when the same activities are named differently which in turn complicates comparison. Indeed the data demonstrates a spectrum of understandings and terminology related to both assessment and curriculum description. Clarification of assessment and curriculum subsection terminology is essential for further research in this field, as is an understanding of assessment systems prior to their formal recognition.

- For the majority of partners the varying degrees of institutional autonomy make it clear that final decisions will usually be taken at a national level however each one of the partners can be a proposal task force.

- Some data is not easy to ascertain, namely all demographic data concerning doctors once they have left medical schools.
- The initial focus of the project concerned curriculum reform and yet ultimately the main theme became that of international student mobility. This theme is however very specific to each university.
- The differences described by the partner medical schools/faculties do however provide opportunities for students to experience alternative healthcare practices and systems.
- The adoption of a uniform credit rating system as well as the drafting of a BA/MA format medical programme mapping would help support comparable degrees and promote student mobility.

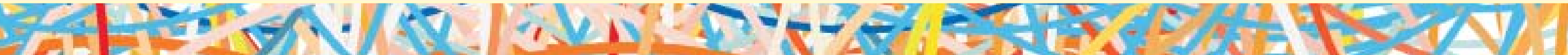
Conclusions

- There is no current common structure in medical education and the realization of the “European Higher Education Area” in medicine still needs much attention.
- A “European Core Curriculum” based on learning outcomes is essential.
- Small networks working on curricula comparison to realize and increase mobility are urgently needed in this field (e.g. ERASMUS next phase from 2014 onwards…) .

- Curriculum mapping is an extremely helpful tool for curricula comparison.

- Curriculum development must focus on “mobility windows“ and student involvement is essential for curriculum development.

Throughout this two year project, eight medical faculties became closely acquainted and collaborated to improve student mobility. Despite this will to change and facilitate mobility, each country is limited by specific national constraints. Most medical curricula are based on national health care requirements on a level that cannot easily be influenced by project partners. Despite this the partnership that evolved from our project can and will still play an influential role in initiating and promoting curriculum reform in the eight participating medical schools.



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Further information: www.charite.de/charme