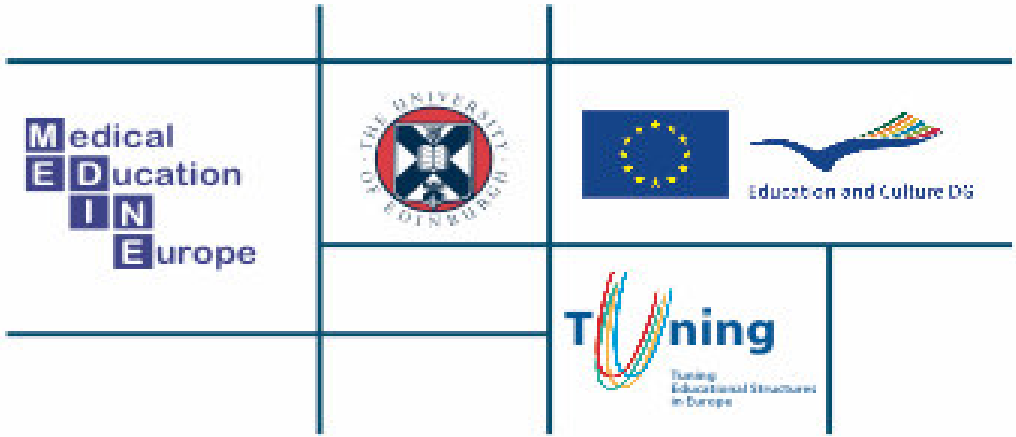
The Tuning (medicine) project:

Defining core learning outcomes for medical degree programmes in Europe

www.tuning-medicine.com



Allan Cumming, Michael Ross

On behalf of the Tuning Project (Medicine) Steering Group and Task Force 1 of the MEDINE Thematic Network

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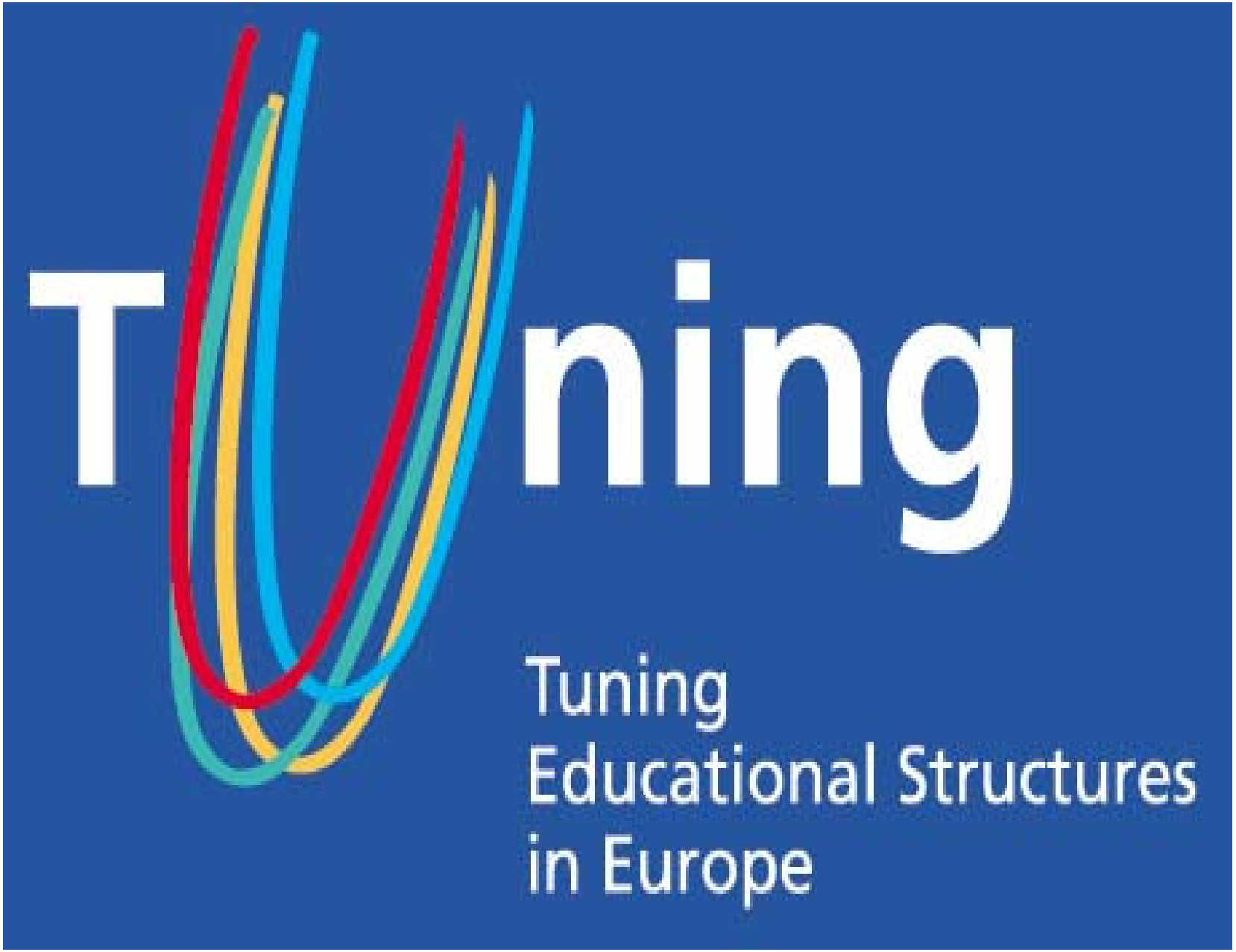
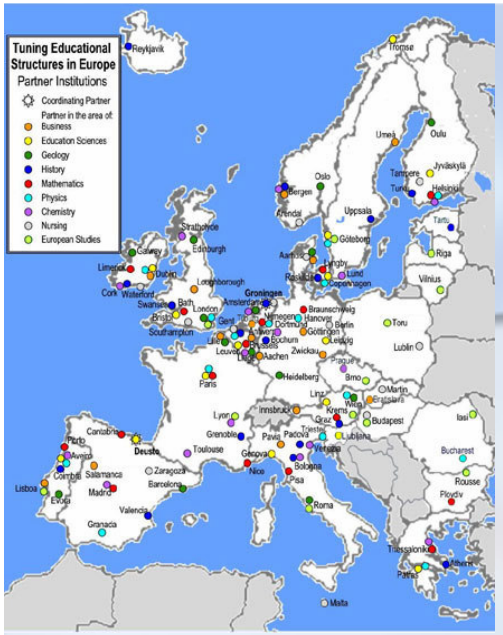

Tuning
Tuning
Educational Structures
in Europe



THE TUNING PROJECT

"HARMONISATION OF LEARNING OUTCOMES FOR HIGHER EDUCATION"

- "The response of the HE sector to the Bologna Declaration"
- Funded by European Commission
- *Generic* and *subject-specific* learning outcomes
- Europe-wide survey and consultation → consensus

Tuning
Educational Structures
in Europe

"Harmonisation of learning outcomes for Higher Education"

What can a graduate do? - outcome or competency-based education

- Development of defined learning outcomes / competences that must be achieved by the end of the course

Learning outcome - "belongs to" the programme

Competence – "belongs to" the graduate as something they can do

At point of graduation – competences at least equivalent to core outcomes

Medical Teacher, Vol. 24, No. 2, 2002, pp. 117–120

Taylor & Francis healthsciences

EDITORIAL

Developments in outcome-based education

R.M. HARDEN

A change of emphasis

Visitors to medical schools are usually shown the new clinical skills centre, the computer learning suite, or the latest interactive response or data projection system with which the lecture theatres have been equipped. These are high-profile features, seductive in their promise of better, easier and perhaps even more cost-effective learning. The visitors have to probe more deeply and often futilely, however, if they wish to see the learning outcomes for the curriculum that students will achieve before graduation and plans as to how these facilities will contribute to each learning outcome. All of this is changing and there is a new agenda for medical education, with a reorientation from process to product. This is not to say that how we teach and how we expect our students to learn is not important. It is. We cannot expect, however, to deliver our learning programme effectively and to choose the most appropriate tools for the task if we have not made the learning outcomes for our courses explicit. The public, the government and our colleagues in the other healthcare professions are asking justifiably for more explicit statements about the product of our medical schools: what sort of doctor are we trying to train and are the needs and expectations of the society in which they will be practising being taken into consideration? Leinster (2002) has drawn attention recently to the need to rethink how we educate doctors, taking into account among other things the changing roles of healthcare professionals, the need to be able to assimilate, evaluate and use new information and the importance of attitudes and communication skills.

Emphasis on learning outcomes

In the UK the General Medical Council (GMC, 2001) revised their 1993 recommendations (GMC, 1993) by adding a new major section to the report which addressed the issue of learning outcomes. The Association of American Medical Colleges in the USA developed a set of learning outcomes for medical education (AAMC, 1998). These were designed to guide individual schools to establish objectives for their own programmes. In the USA, Brown University described their learning outcomes as a list of nine abilities (Smith & Dollase, 1999). The American Board of Internal Medicine (Stobo & Blank, 1998) in a report on Project Professionalism, the Royal College of Physicians and Surgeons of Canada (2000), and the Accreditation Council for Graduate Medical Education (2001) set out learning outcomes for postgraduate and continuing education.

In the UK, the Quality Assurance Agency for Higher Education included outcome-based learning in their 2000 *Handbook for Academic Review*, as a component of the programme specifications to be reviewed. Institutions were expected, for each education programme, to have set out the intended learning outcomes of the programme and the teaching and learning methods that enabled learners to achieve the outcomes and the assessment methods used to demonstrate the achievement.

Development of outcome-based education

Over the past four decades there have been several precursors to this move to outcome-based education. These include competence-based education, criterion-referenced learning and mastery learning, which focus on competences or criterion levels of performance that are achieved by carefully sequenced teaching (Spady, 1982; Brady, 1994). Other ideas and terms attached to outcome-based education include authentic assessment and interdisciplinary outcomes (Schwarz & Cavener, 1994).

Guskey (1992) observed that 'All the basic tenets of what we now call "outcome-based education" were elegantly set forth by Ralph W. Tyler over 40 years ago'. It could be argued that outcome-based education emerged from the objectives movement of the 1950s. Spady was a leading disciple and defined it as: 'Outcome based education means organising for results: basing what we do instructionally on the outcomes we want to achieve' (Spady, 1988).

There are significant differences between the 'instructional objectives' debate of the 1960s and '70s and the emphasis on 'learning outcomes' today. Outcome-based education has come to be characterized by:

- the development of clearly defined and published learning outcomes that must be achieved before the end of the course;
- the design of a curriculum, learning strategies and learning opportunities to ensure the achievement of the learning outcome;
- an assessment process matched to the learning outcomes and the assessment of individual students to ensure that they achieve the outcomes;
- the provision of remediation and enrichment for students as appropriate.

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Subject-specific – Earth sciences

First Cycle	
Key Subject Specific Competences	***Key Generic Competences***
• Show broad knowledge and understanding of the essential features, processes, history and materials of System Earth. • Recognize the applications and responsibilities of Earth Science and its role in society. • Show adequate knowledge of other disciplines relevant to Earth Science. • Independently analyze earth materials in the field and laboratory; describe, document and report the results. • Be able to reason in large-scale spatial and, or temporal frameworks	• Work both independently and in a team • Basic general knowledge • Grounding in basic knowledge of the profession • Oral and written communication in your native language • Knowledge of a second language • Elementary computing skills • Information management skills • Awareness of safety
Second Cycle	
• Be able to define, determine and implement a strategy for solving an Earth Science problem and to produce a substantial report or thesis.	• Research skills • Capacity for analyses and synthesis • Problem solving
Third Cycle	
• Demonstrate the ability to perform independent, original and ultimately publishable research in the field of Earth Sciences	• Creativity • Critical and self-critical abilities

Tuning América Latina

Tuning Project

English

search...

Main Menu

- **Tuning Project**
  - Background
  - Objectives
  - Outcomes
  - Lines
  - Structure
- **Participants**
- **Subject areas**
- **Documents**
- **Reuniones**

- **Links**
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- **Tuning Europe**
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Tuning Latin America Project

The ALFA Tuning Latin America Project seeks to 'fine tune' the educational structures that exist in Latin America, initiating a debate whose aim is to identify and improve co-operation between higher education institutions, so as to develop excellence, effectiveness, and transparency. It is an independent project, promoted and co-ordinated by universities in many different countries, both Latin American and European.

Se incorporarán 120 nuevas Universidades Latinoamericanas al Proyecto Tuning América Latina, en 8 nuevas áreas del conocimiento.

Events Calendar

January 2006

M	T	W	T	F	S	S
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

This month

Hit Counter

531876 Visitors

MEDINE

Thematic Network - Medical Education in Europe

The European Commission has approved an application for a new Thematic Network in Medical Education, MEDINE, to commence this Autumn, 2004, for three years.

Aims and objectives

Medical Education in Europe (MEDINE) addresses educational, institutional and quality issues in European medical education. It works within the framework of European initiatives - the Bologna Declaration, European Credit Transfer System (ECTS), Diploma Supplement, the two-cycle system, the Tuning project, and previous work in medicine by the European Commission, AMEE, AMSE, and WFME. Target groups are students, educators, patients, healthcare providers, professional bodies, the public, the European Commission and Ministers of Health and Education.

Organisation

Overall coordination is by the University of Bristol Faculty of Medicine, with the help of Semmelweis University in Budapest and the University of Edinburgh.

Task Forces undertake five principal activities and outputs, with lead institutions as shown.

1. Agree core competences/learning outcomes for medical education in Europe, using methodology of the Tuning project (University of Edinburgh)
2. Develop a framework for international recognition of qualifications, in the context of medical education and links with other professions (University of Antwerp)
3. Develop quality assurance standards for the process of medical education for application in Europe (WFME/AMSE).
4. Enhance the transparency and public understanding of medical education - undergraduate, postgraduate and continuing - and its outcomes, within and outside Europe (AMEE)
5. Explore and develop links between medical education and research (Semmelweis University).

The Task Forces share and disseminate their work through Annual Conferences and a Network website.

Membership

90 institutions and organisations are currently members of the Network, spread across all countries of the enlarged EU, countries which are candidates for EU membership, Switzerland and a few institutions in other countries not eligible for EU membership.

University of BRISTOL

Further information

Mr Tim Jones, Director of International Affairs, University of Bristol.
Email: tim.jones@bris.ac.uk
telephone: 0117 954 5834 or 5775

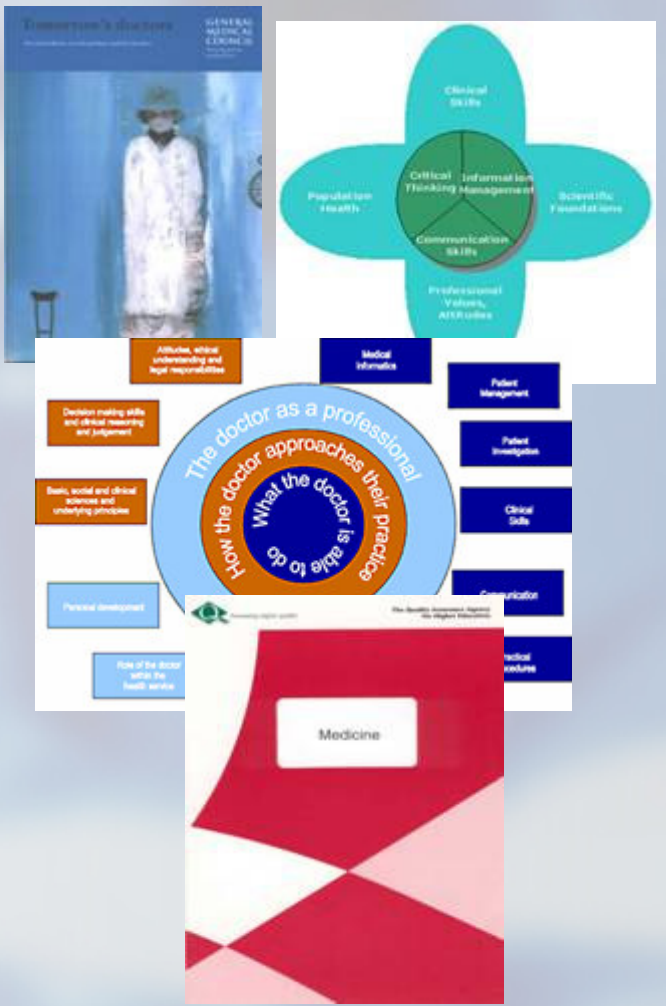
Background to Tuning (medicine)

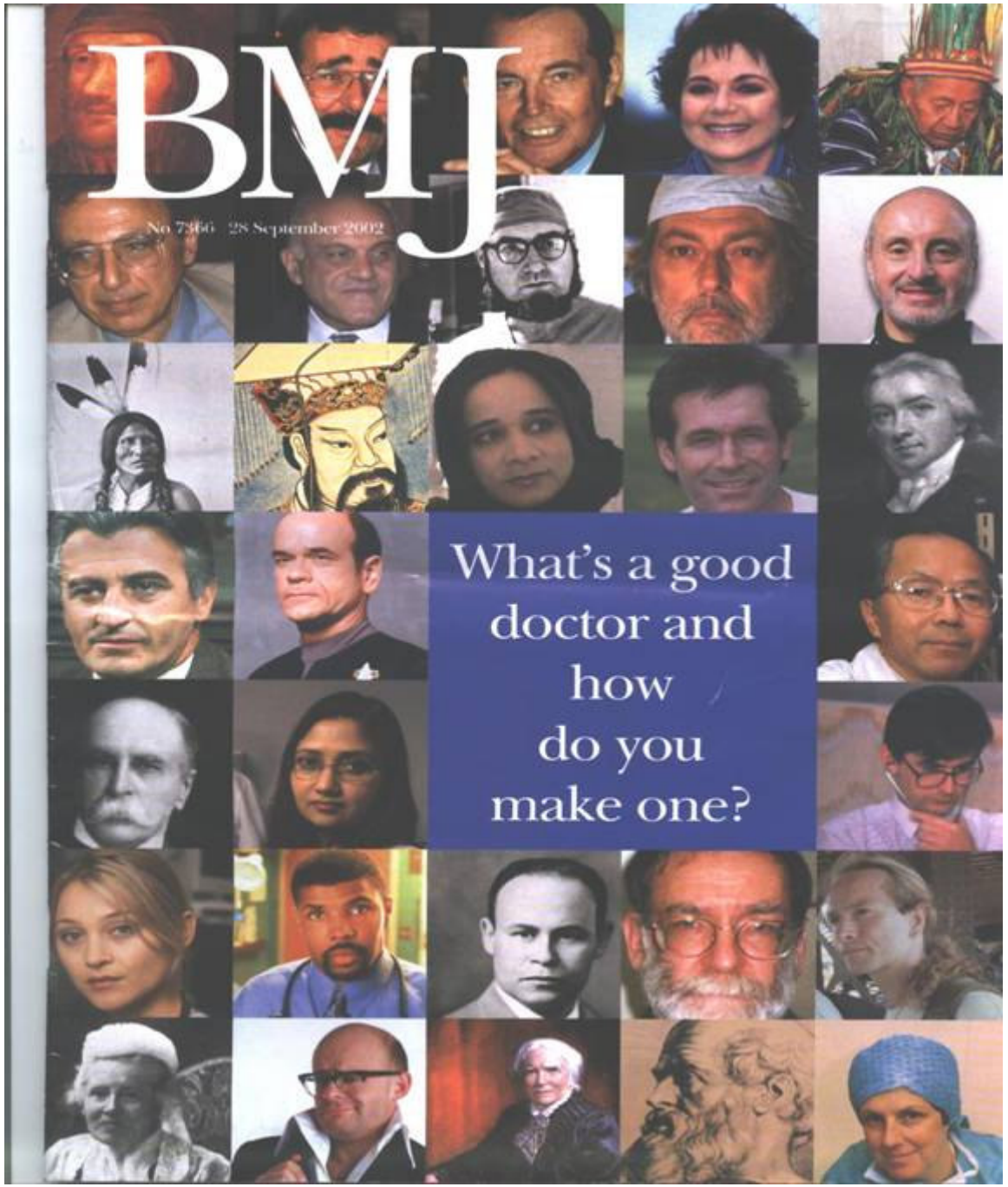
- Medicine is EU 'regulated profession'
  http://europa.eu/scadplus/leg/en/cha/c11065.htm
- Cross-recognition of primary medical qualifications in EU
  Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005
- Bologna process http://www.europeunit.ac.uk/bologna_process/index.cfm
- Wide variation in:
  - admission standards / procedures
  - programme length (4-7 yr+)
  - learning outcomes and core competencies
  - qualifications (1-3 degrees)
  - association between graduation and license to practise

LEARNING OUTCOMES FOR MEDICINE – OUT OF TUNE?

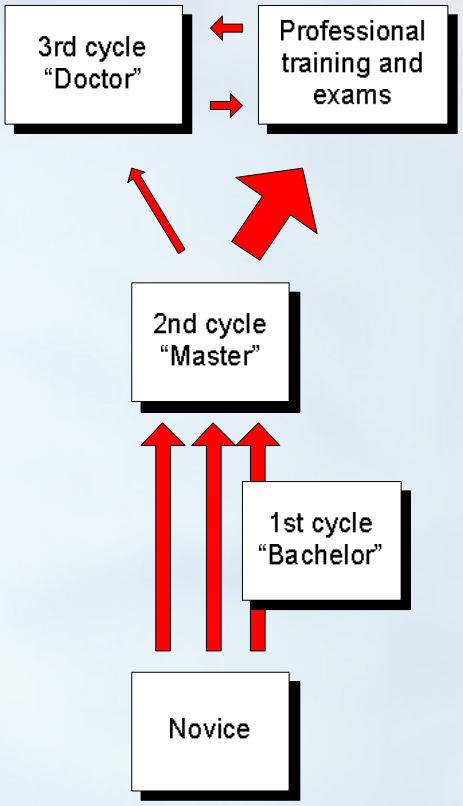
Vary enormously in

- Overall structure
- Level of detail
- Content
- Application




BMJ
No 7366 28 September 2002
What's a good doctor and how do you make one?

Tuning (Medicine)



- Focus on outcomes for primary medical degree qualification ("Master of medicine")
- Potential ? to work back/forwards for other cycles/professional qualifications

MEDINE Tuning
Tuning Educational Structures in Europe

The Tuning Project (Medicine) process and methods

- Review of existing outcomes frameworks
- Draft Tuning outcomes framework
- Tuning (Medicine) Task Force sequentially reviewed draft framework
- Tuning (Medicine) Task Force workshops -
  - Budapest (April 2005)
  - Amsterdam (September 2005)
  - Edinburgh (February 2006)
  - Prague (May 2006)
  - Genoa (September 2006)
- Online survey based on draft framework

Online Survey

- Questionnaire (English, German, French)
  - **115 learning outcomes**
  - **39 knowledge domains**, **14 practice settings**
  - **Free text comments**
  - **Demographic information**
- Respondents - academics, graduates, employers, students
- Respondents rated importance of learning outcomes for primary medical degree (scale 1-4)
- Rank order informs the formulation of final Tuning outcomes

Survey responses

1302 responses

- 830 English version
- 453 German version
- 19 French version

- All EU member states except
  Luxembourg, Estonia, Cyprus

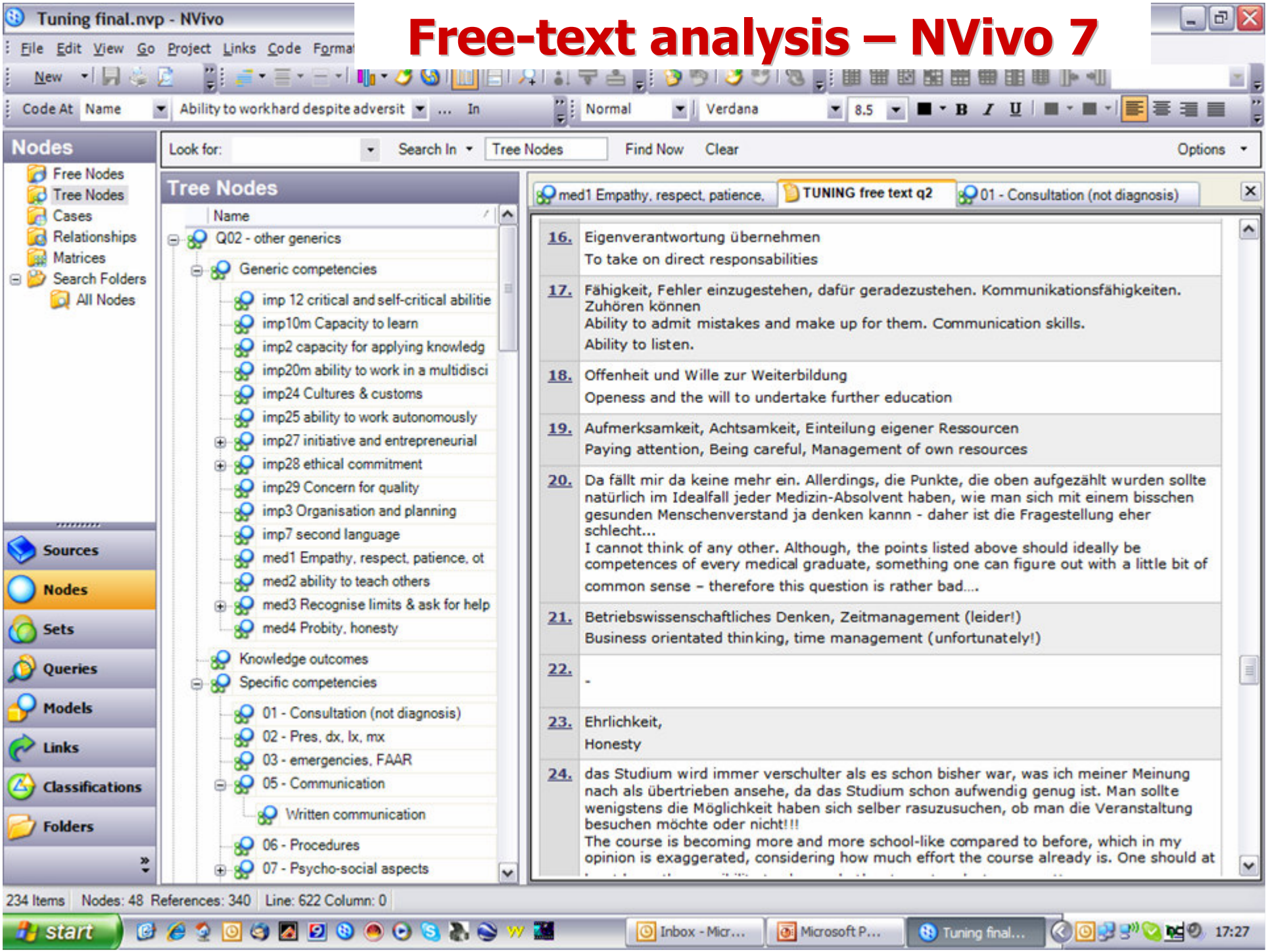
Example Level 2 outcomes

'Ability to carry out a consultation with a patient'	**3.77**
Ability to take a history	3.80
Ability to carry out physical examination	3.78
Ability to make clinical judgements and decisions	3.51
Ability to provide explanation and advice	3.37
Ability to provide reassurance and support	3.30
Ability to assess the patient's mental state	3.22

Low-ranking Level 2 outcomes

Ability to perform respiratory function tests	2.53
Ability to provide evidence to a court of law	2.48
Ability to analyse and disseminate experimental results	2.17
Ability to apply statistical analysis to data	2.15
Ability to design research experiments	1.81
Ability to carry out practical laboratory research procedures	1.71

Free-text analysis – NVivo 7



Consideration of findings by MEDINE Thematic Network

- Tuning Task force, Oslo, May 2007
- Some low-ranked outcomes omitted
- Free-text responses - small number of new outcomes added based on emergent themes

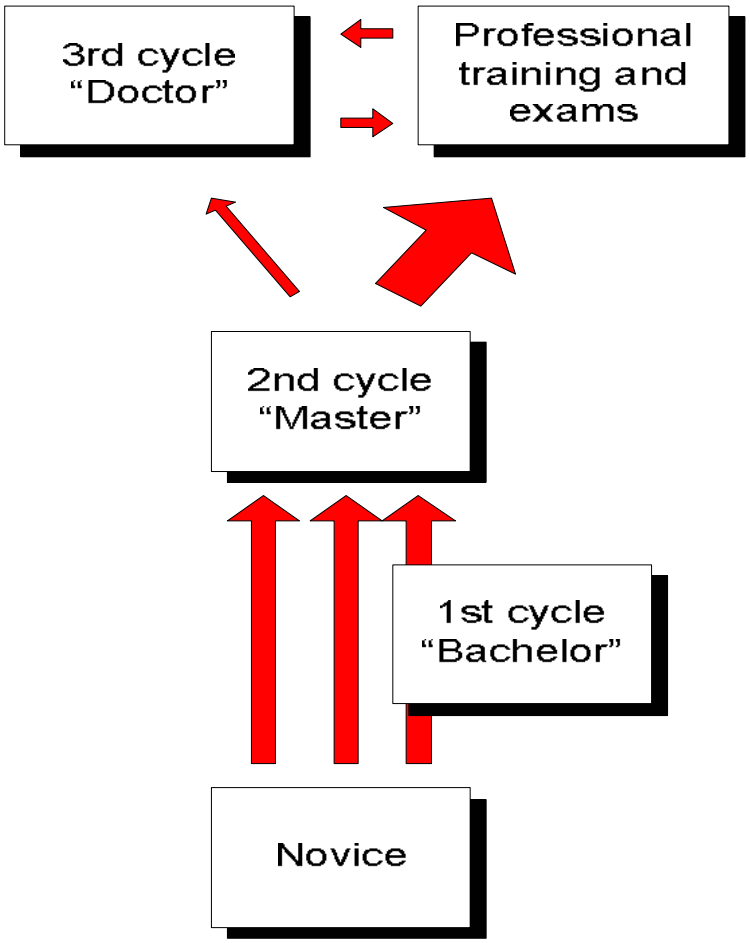
Current status

- Review of Tuning outcomes by Expert Panel, Sectoral Validation Conference, Brussels, June 2007
- Further statistical analysis
- MEDINE Final meeting, Anatalya, Sept 2007
- Report to the European Commission, November 2007
- Publication of summary Tuning booklet, May 2008
- Launch of Tuning booklet, AMEE Conference, Prague, September 2008

- Further funding support being sought


Learning Outcomes/
Competences for
Undergraduate Medical
Education in Europe
Tuning
Medical
Education
in
Europe
The Tuning Project (Medicine)

TUNING (MEDICINE)



Structure of Outcomes Framework

- Level 1 outcomes
- Level 2 outcomes
- Outcomes for medical professionalism

Appendices

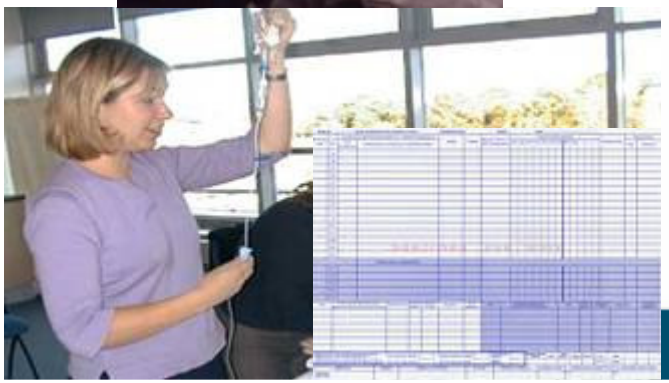
- Knowledge outcomes
- Clinical attachments and experiential learning

The Tuning Learning Outcomes/ competences for Primary Medical Degrees in Europe

LEVEL 1

Graduates in medicine will have the ability to:

- carry out a consultation with a patient
- assess clinical presentations, order investigations, make differential diagnoses, and negotiate a management plan
- provide immediate care of medical emergencies, including First Aid and resuscitation
- prescribe drugs
- carry out practical procedures
- communicate effectively in a medical context
- apply ethical and legal principles in medical practice
- assess psychological and social aspects of a patient's illness
- apply the principles, skills and knowledge of evidence-based medicine
- use information and information technology effectively in a medical context
- apply scientific principles, method and knowledge to medical practice and research
- promote health, engage with population health issues and work effectively in a health care system



LEVEL 2 (the relevant Level 1 outcomes are shown in bold parenthesis)

Graduates in medicine will have the ability to:

'Carry out a consultation with a patient'

- take a history
- carry out physical examination
- make clinical judgements and decisions
- provide explanation and advice
- provide reassurance and support
- assess the patient's mental state

'Assess clinical presentations, order investigations, make differential diagnoses, and negotiate a management plan'

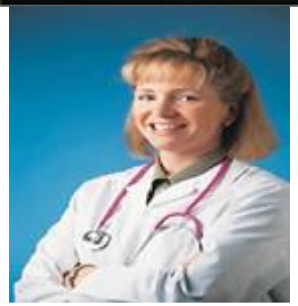
- recognise and assess the severity of clinical presentations
- order appropriate investigations and interpret the results
- make differential diagnoses
- negotiate an appropriate management plan with patients and carers
- provide care of the dying and their families
- manage chronic illness

'Provide immediate care of medical emergencies, including First Aid and resuscitation'

- recognise and assess acute medical emergencies
- treat acute medical emergencies
- provide basic First Aid
- provide basic life support and cardio-pulmonary resuscitation according to current European guidelines
- provide advanced life support according to current European guidelines
- provide trauma care according to current European guidelines

'Prescribe drugs'

- prescribe clearly and accurately
- match appropriate drugs and other therapies to the clinical context
- review the appropriateness of drug and other therapies and evaluate potential benefits and risks
- treat pain and distress



'Carry out practical procedures'

- measure blood pressure
- venepuncture
- cannulation of veins
- administer IV therapy and use infusion devices
- subcutaneous and intramuscular injection
- administer oxygen
- move and handle patients
- suturing
- blood transfusion
- bladder catheterisation
- urinalysis
- electrocardiography
- basic respiratory function tests

'Communicate effectively in a medical context'

- communicate with patients
- communicate with colleagues
- communicate in breaking bad news
- communicate with relatives
- communicate with disabled people
- communicate in seeking informed consent
- communicate in writing (including medical records)
- communicate in dealing with aggression
- communicate by telephone
- communicate with those who require an interpreter

'Apply ethical and legal principles in medical practice'

- maintain confidentiality
- apply ethical principles and analysis to clinical care
- obtain and record informed consent
- certify death
- request autopsy
- apply national and European law to clinical care

'Assess psychological and social aspects of a patient's illness'

- assess psychological factors in presentations and impact of illness
- assess social factors in presentations and impact of illness
- detect stress in relation to illness
- detect alcohol and substance abuse, dependency

'Apply the principles, skills and knowledge of evidence-based medicine'

- apply evidence to practice
- define and carry out an appropriate literature search
- critically appraise published medical literature

'Use information and information technology effectively in a medical context'

- keep accurate and complete clinical records
- use computers
- access information sources
- store and retrieve information

'Ability to apply scientific principles, method and knowledge to medical practice and research'

- no specified level 2 outcomes

'Promote health, engage with population health issues and work effectively in a health care system'

- provide patient care which minimises the risk of harm to patients
- apply measures to prevent the spread of infection
- recognise own health needs and ensure own health does not interfere with professional responsibilities
- conform with professional regulation and certification to practise
- receive and provide professional appraisal
- make informed career choices
- engage in health promotion at individual and population levels

Outcomes for Medical Professionalism

Professional attributes

- probity, honesty, ethical commitment
- commitment to maintaining good practice, concern for quality
- critical and self-critical abilities, reflective practice
- empathy
- creativity
- initiative, will to succeed
- interpersonal skills

Professional working

- ability to recognise limits and ask for help
- capacity to deal with uncertainty and adapt to new situations
- ability to lead others
- ability to work autonomously when necessary
- ability to solve problems
- ability to make decisions
- ability to work in a multidisciplinary team
- ability to communicate with experts in other disciplines
- capacity for organisation and planning (including time management)

The doctor as expert

- capacity for analysis and synthesis
- capacity to learn (including lifelong self-directed learning)
- capacity for applying knowledge in practice
- ability to teach others
- research skills

The global doctor

- appreciation of diversity and multiculturality
- understanding of cultures and customs of other countries
- ability to work in an international context
- knowledge of a second language
- general knowledge outside medicine

Appendix A: Knowledge Outcomes

Although not formally part of Tuning methodology, the web-base questionnaire survey also sought opinion about important areas of knowledge for medical graduates. The ranked results are shown below. In general, the highest scores and rankings related to knowledge of traditional scientific disciplines which underpin medical practice, such as physiology, anatomy, biochemistry, and immunology, together with clinical sciences such as pathology, microbiology and clinical pharmacology. The lowest ranking related to knowledge of "different types of complementary / alternative medicine and their use in patient care".

Graduates from medical degree programmes in Europe should be able to demonstrate knowledge of:

Basic Sciences

Normal function (physiology)
Normal structure (anatomy)
Normal body metabolism and hormonal function (biochemistry)
Normal immune function (immunology)
Normal cell biology
Normal molecular biology
Normal human development (embryology)

Behavioural and social sciences

Psychology
Human development (child/adolescent/adult)
Sociology

Clinical Sciences

Abnormal structure and mechanisms of disease (pathology)
Infection (microbiology)
Immunity and immunological disease
Genetics and inherited disease

Drugs and prescribing

Use of antibiotics and antibiotic resistance
Principles of prescribing
Drug side effects
Drug interactions
Use of blood transfusion and blood products
Drug action and pharmacokinetics
Individual drugs
Different types of complementary / alternative medicine and their use in patient care

Public Health

Disease prevention
Lifestyle, diet and nutrition
Health promotion
Screening for disease and disease surveillance
Disability
Gender issues relevant to health care
Epidemiology
Cultural and ethnic influences on health care
Resource allocation and health economics
Global health and inequality

Ethical and legal principles in medical practice

Rights of patients
Rights of disabled people
Responsibilities in relation to colleagues

Role of the doctor in health care systems

Laws relevant to medicine
Systems of professional regulation
Principles of clinical audit
Systems for health care delivery

Appendix B: Clinical Attachments and Experiential Learning

Although not formally part of Tuning methodology, the web-base questionnaire survey also sought opinion about which areas of clinical medical practice were most important to be included as part of the core undergraduate medical school programme. The ranked results are shown below. In general, the highest rankings related to acute medical and surgical care settings, with community and primary care also ranking highly. The lowest rankings related to areas of specialised surgical and medical practice.

Medical graduates should have experienced clinical work in these areas:

Care of acutely ill patients in Casualty / Accident and Emergency units

Care of general (internal) medical patients in medical admission units

Care of general surgical patients in surgical admission units

Care in the community/family practice/primary care

Care for elderly patients

Care for sick children

Care for the dying, palliative care

Care for mentally ill patients

Obstetric and gynaecological care

Care for critically ill patients in Intensive Care Units

Care of patients with specialised medical conditions (eg haematology, renal)

Anaesthetic care

Rehabilitation medicine

Care of patients with specialised surgical conditions (eg cardiac surgery, urology)

TUNING (MEDICINE) – THE FUTURE

? Gathers dust on shelves

? Influences curriculum development, promotes harmonisation

? Incorporated into QA/accreditation systems

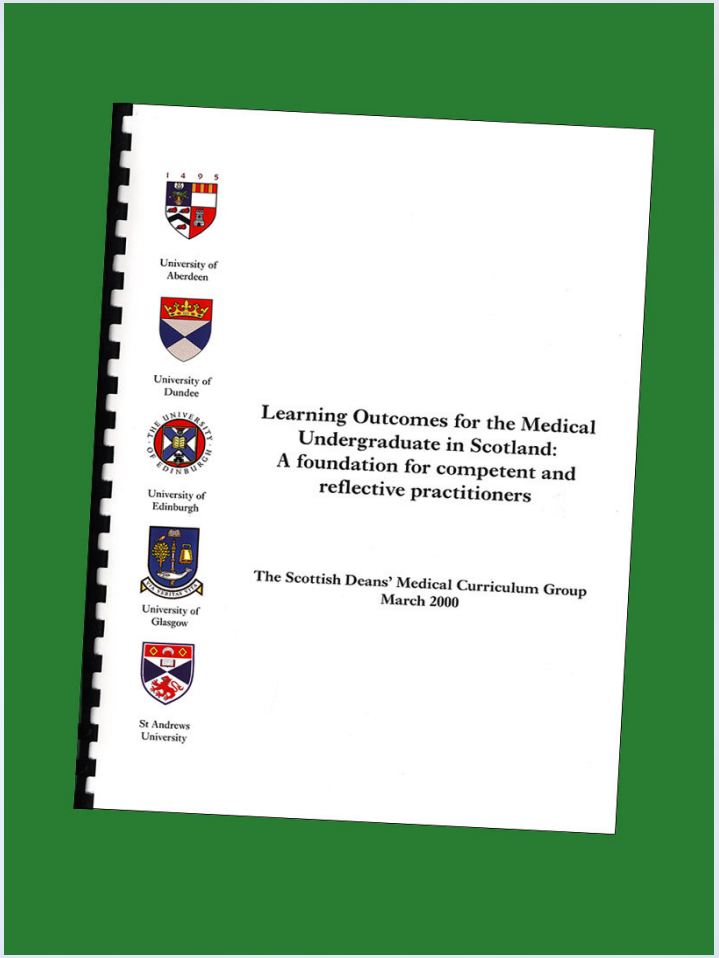
TUNING (MEDICINE) – THE FUTURE

- **"Tuning process"** – a medical school or other institution interrogates their educational provision in the light of Tuning
- A set of products – the **"Tuning Toolkit"** - to support this process

THE "TUNING TOOLKIT"

- **The Tuning (Medicine) learning outcomes**
- **Tuning (Medicine) guide** – expanded clarification of each outcome, guidance on teaching and assessment, examples of best practice
- **Self-assessment template** to allow a medical school to evaluate their educational provision against each Tuning outcome
- **Mapping template** and software to allow a medical school to map their own graduating outcomes against the Tuning framework
- **Blueprinting** templates for schools matching their assessments against Tuning outcomes
- **PowerPoint presentations** and other materials for staff use
- **Feedback template** for feedback from Task Force to schools
- **Website** where these and other relevant resources are held

MAPPING ONE OUTCOMES FRAMEWORK TO ANOTHER



Outcomes Mapper

Show all mappings :

This tool allows you to explore the mappings made between the Scottish Doctors and GMC Tomorrows Doctors outcome models. The Scottish Doctors outcomes are shown with a yellow background and the Tomorrows Doctors with a blue background.

Scottish Doctors	Tomorrows Doctors
Formulate a management plan [0101010500-level 3]_ Higher: 0101010000 _ Lower: 0101010501 _	Make clinical decisions based on the evidence they have gathered. [TD0404010500-level 4 _ _ - rellaway - Created: 8/26/2004 10:44:05 AM]
	Assess a patient's problems and form plans to investigate and manage these, involving patients in the planning process. [TD0404010600-level 4 _ _ - rellaway - Created: 8/26/2004 10:45:54 AM]

Instructions

The tool shows a base node in the left hand column. This is the node from which all of the other information is derived. The left hand column also has buttons for navigating up a level or down to the various levels below the base node. The right hand column shows mapped nodes from the other outcome model to the one in the left hand column. In this column the orange arrow allows you to toggle the view, moving the particular mapped node to the base node. The green icon lets you preview a node in its page view. The saltire icon indicates a consensus mapping. Individual mappings can be viewed by clicking on the 'show all mappings' link; the blue icon represents the cartographer's institution (A=Aberdeen, D=Dundee, E=Edinburgh, G=Glasgow, S=St Andrews). A note of the individual cartographer's ID is also recorded as are any notes they may have made. Note that a separate entry is made for each node-node pairing. For situations where two or more cartographers are in agreement the node entry will be repeated.

BLUEPRINTING
Tracking the assessment of outcomes

07 05 Yr3 OSCE OSCA BLUEPRINT 2006-07

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	OSCE																	
2		CLINICAL SPECIALTY SETTING	COMM	CONS & CLIN PRES DIAGNOSIS & MANAGEMENT					CLIN PROC	FA&R	MELPR	PPD	CSMI	EBMR (STATS)	PUBLIC HEALTH	PSYCH MED	PH&TH	BIOMED & CLIN SCIENCES
3			History	Explain Advice	Exam	Diff Diagnosis	Investigate	Managment										
4	STATION ORGANISER STAFF NAME STATION																	
5	Phil Hodkinson	RESP			X	X	X											
6	Alan Bagnall	CVS			X	X												
7	Andrew Robson	GI	X	X				X										
8	Anish Amin/Philip Riches	LMS																
9	Janette Moyes	DIABETES			X	X			X		X							X
10	Kirsty Boyd/Bryan Allan	GI		X				X										
11	Mary Reid	CVS	X	X			X				X				X	X		
12	OSCA (Some of these stations will be combined)																	
13	STATION ORGANISER STAFF NAME STATION																	
14	Marshall Dozier/Andy Tambyrajа	DRUG DEV						X					X	X				
15	Stephen Glancy	CVS/RS/GI/LMS RADIOLOGY				X		X										X
16	Fanney Kristmundsdottir/ Gordon Findlater	RS/GI/LMS ANATOMY																X
17	Hugh Gilmour	CVS/RS/GI/LMS PATHOLOGY				X					X	X			X			X
18	Ian Lawrenson	CVS/RS/NEURO MICROBIOLOGY					X	X			X	X			X		X	
19	Simon Maxwell	CVS/RS/GI/LMS PRESCRIBING				X		X									X	
20	Phil Hodkinson	RESP				X	X	X									X	X
21	Alan Bagnall	CVS				X	X	X									X	X
22	Val McDowall	CVS/RS RESUSCITATION			X	X	X	X	X	X							X	X
23	Karen Simpson/Daniel Porter	LMS										X	X				X	X

Sheet1 / Sheet2 / Sheet3

IMPLEMENTATION

- Taskforce will provide constructive feedback based on material submitted in "Toolkit" format.
- ? Down-stream curriculum review and reform?

OTHER AVENUES

- Links with postgraduate basic and medical specialty training
- Links with other disciplines e.g. nursing, pharmacy
- Links outside Europe e.g. Latin America, China
- Learning outcomes for 1st and 3rd cycles?

The Tuning Project (Medicine)

- EU values diversity
- “A little more tuneful”!

www.tuning-medicine.com

Learning Outcomes for medical degrees in Europe - Level 1

carry out a consultation with a patient (history, examination ...)	3.77
provide immediate care of medical emergencies, including First Aid and resuscitation	3.66
assess clinical presentations, order investigations, make differential diagnoses, and negotiate a management plan	3.50
carry out practical procedures (e.g. venepuncture)	3.36
communicate effectively in a medical context	3.31
prescribe drugs	3.26
apply ethical and legal principles in medical practice	3.26
assess psychological and social aspects of a patient's illness	3.17
apply the principles, skills and knowledge of evidence-based medicine	3.02
use information and information technology effectively in a medical context	2.93
apply scientific principles, method and knowledge to medical practice and research	2.89
promote health, engage with population health issues and work effectively in a health care system	2.83

Level-1 specific outcome average rating by respondent category

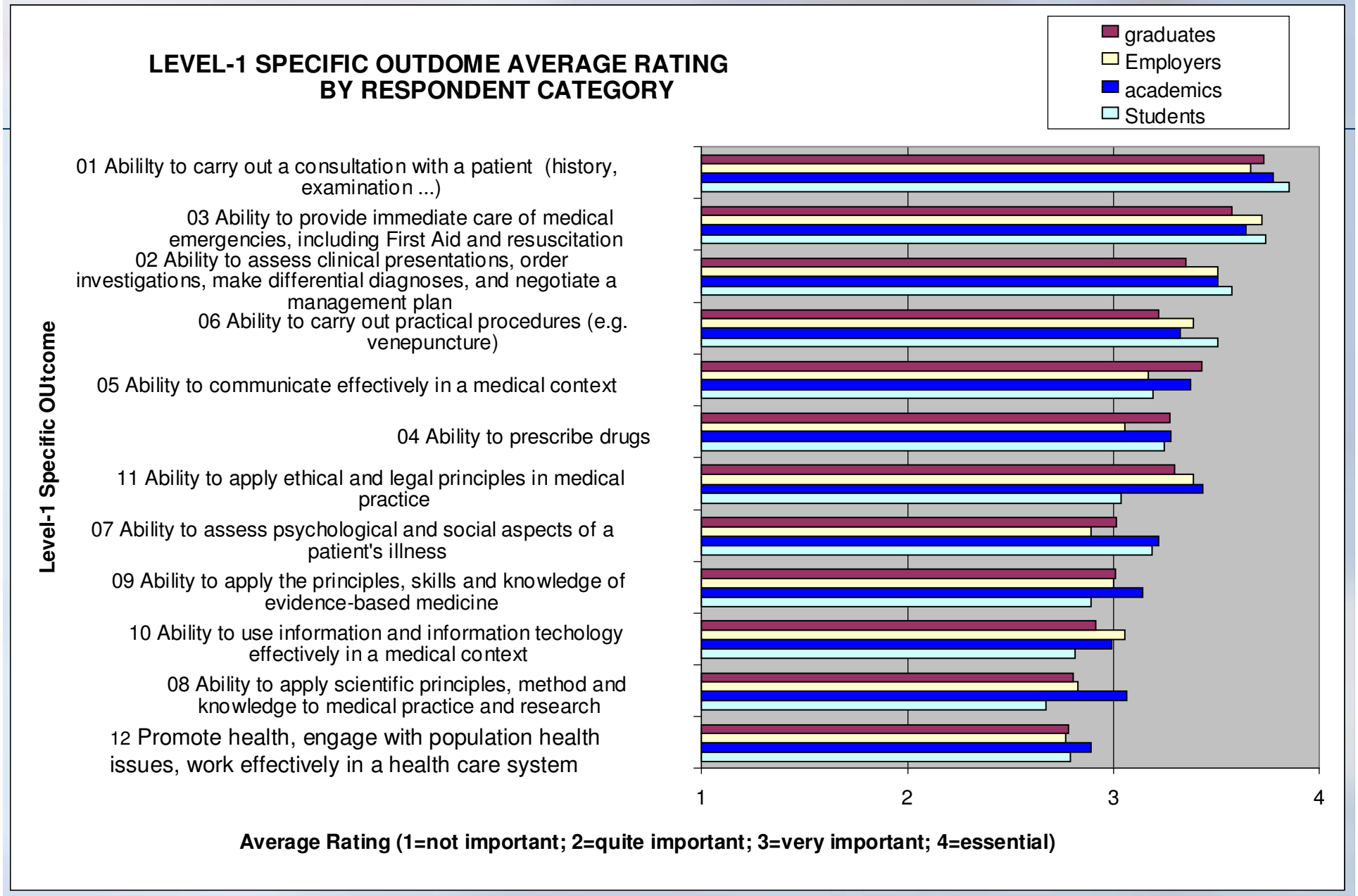
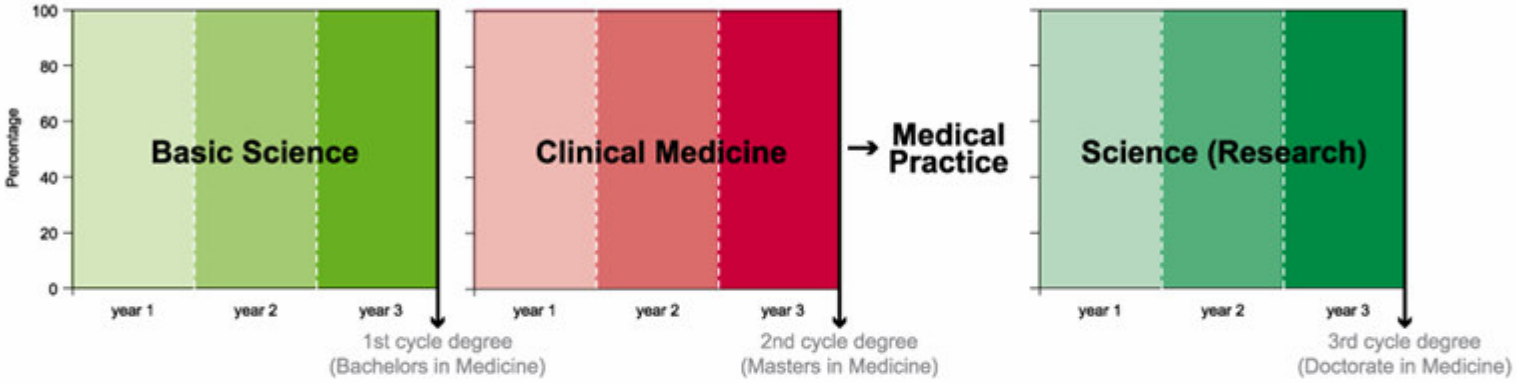
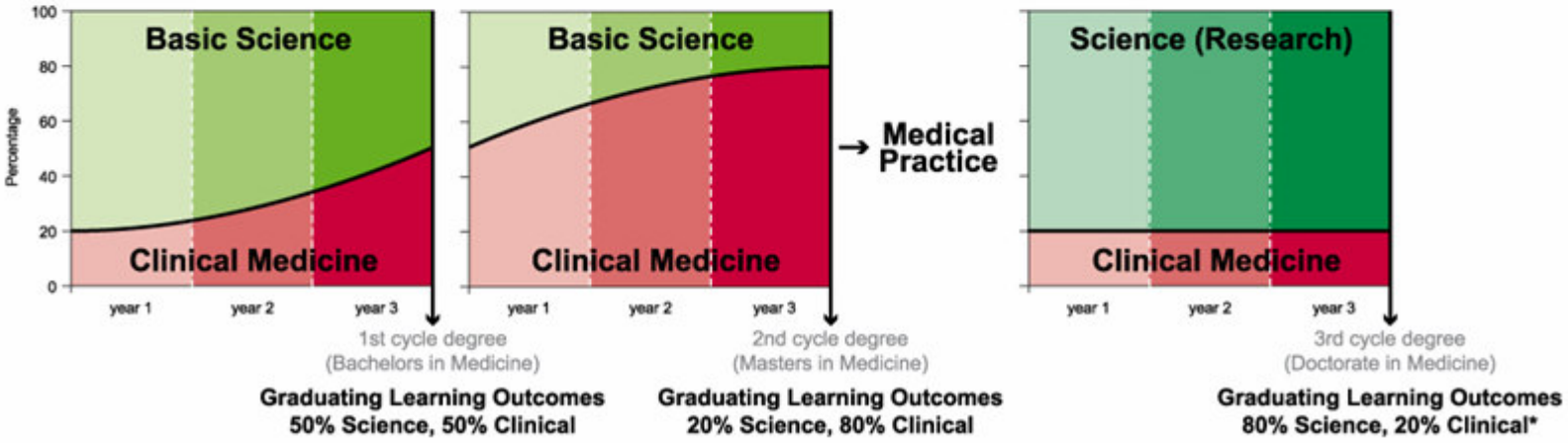


Fig 1: The Bologna Process and Integrated Medical Education

a) A possible model of the Bologna Process applied to Medical Education in the absence of agreed Learning Outcomes/Competences for each cycle, leading to loss of integration.



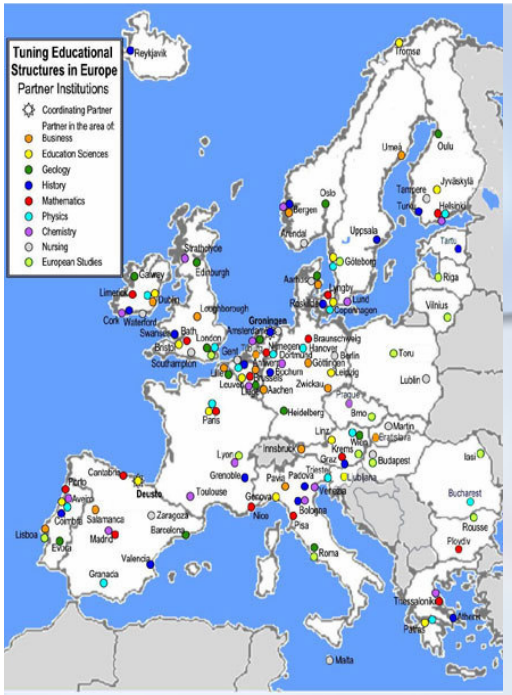
b) A possible model of the Bologna Process applied to Medical Education with agreed Learning Outcomes/Competences for each cycle, leading to enhanced integration.



**This would recognise the specific nature of a Doctorate in Medicine, as opposed to a PhD in another subject.*

IMPLICATIONS

- New teaching programmes
- New teaching & learning styles
- New teachers
- New teaching facilities
- New assessments – OSCEs, portfolios
- New systems for curriculum management



WHAT IS A EUROPEAN MEDICAL GRADUATE?

- **"Basic medical training: admission to basic medical training shall be contingent upon possession of a diploma or certificate providing access to universities or equivalent institutes which provide higher education, and shall comprise a total of at least six years of study or 5500 hours of theoretical and practical training provided by, or under the supervision of, a university."**

http://europa.eu/scadplus/leg/en/cha/c11065.htm

Universal cross-recognition of primary medical qualifications within Europe

Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005

THE 7 EUROPEAN "SECTORAL PROFESSIONS"

- Medical doctor
- General care nurse
- Midwife
- Dental practitioner
- Veterinary surgeon
- Pharmacist
- Architect

Requirements of Directive 2005-36-EC (1)

Doctors of medicine - Article 24

Basic medical training

1. Admission to basic medical training shall be contingent upon possession of a diploma or certificate providing access, for the studies in question, to universities.

2. **Basic medical training** shall comprise **a total of at least six years of study or 5500 hours of theoretical and practical training** provided by, or under the supervision of, a university. […]

Requirements of Directive 2005-36-EC (2)

3. Basic medical training shall provide an assurance that the person in question has acquired the **following knowledge and skills**:

(a) adequate knowledge of the sciences on which medicine is based and a good understanding of the scientific methods including the principles of measuring biological functions, the evaluation of scientifically established facts and the analysis of data

(b) sufficient understanding of the structure, functions and behaviour of healthy and sick persons, as well as relations between the state of health and physical and social surroundings of the human being

(c) adequate knowledge of clinical disciplines and practices, providing him with a coherent picture of mental and physical diseases, of medicine from the points of view of prophylaxis, diagnosis and therapy and of human reproduction

(d) suitable clinical experience in hospitals under appropriate supervision

Directive 2005-36-EC

- **Came into force on October 20th 2007**
- replaced fifteen existing instruments: (89/48/EEC, 92/51/EEC, 1999/42/EC, (93/16/EEC, 77/452/EEC, 77/453/EEC, 78/686/EEC, 78/687/EEC, 78/1026/EEC, 78/1027/EEC, 80/154/EEC, 80/155/EEC, 85/432/EEC, 85/433/EEC, and 85/384/EEC)
- greater liberalisation of cross-border service provision
- more automatic recognition of qualifications
- increased flexibility in updating the legislation

DG MARKT

- Responsible for vocational directives
- Carries sole legal responsibility for the "Common Market"
- Can fine member states for "infringements"
- Closely related Directive on "Services in the Internal Market"
- Has "refrained from taking on board" the Bologna Process and associated initiatives emanating from DG Education & Culture.

Standing Committee of European Doctors (CPME)

- http://www.cpme.be
- the umbrella organisation of all EU national medical associations, representing two million doctors
- 2004 - welcomed the Bologna Process in principle - transparency, mobility, quality assurance, ECTS.
- Strongly opposed a two-cycle structure in medical education.
  - effective recognition procedures already enshrined in EU legislation
  - medical education not an academic, but a professional concern
  - work in progress to remove the sequential distinction between pre-clinical and clinical training
  - a first cycle Bologna qualification would have no utility in the medical labour market and could lend itself to abuse and the compromising of public safety
- In 2005 a joint statement by AMEE and WFME effectively endorsed the position taken by CPME.

General findings of the Validation Panel

I) The Validation Group expresses great appreciation for the work of the TUNING (MEDINE) Task Force 1 and has high respect for the results presented in the report. The results are by and large consistent with comparable studies identifying competences in medicine.

II) The Validation Group endorses the interpretation of the Tuning remit as a consideration of the learning outcomes achieved by students by the end the undergraduate medical programme (up to six years).

III) The panel understands that further analyses of the data will take place. Conclusions should be reviewed in the light of these results. Such analysis could include:

a) Bar graph comparison of level-1 outcomes for all respondents, German respondents, UK respondents and all except German and UK respondents.
b) Distribution graph (and / or statistical representation) of the responses for each Level-1 Subject-specific outcome (i.e. how many E, VI, QI or NI).
c) Statistical comparison of the distribution of responses by country
d) Look at median (vs average) responses when making sub-group comparison
e) Specific questions - Do German responses skew results? (or other large numbers such as the UK). Do student responses skew results?

IV) Would be useful to tag competences with 'Public health', 'Clinical', 'Social sciences', etc. if possible, as has been done with the Global Minimal Standards.

V) Some errors were identified in the Tuning (Medicine) document and should be corrected as follows: Change the order of Teaching, Learning and Assessment section; need to highlight and better define the relationship between subject-specific and generic competences (e.g. 'Application of knowledge in practice'); should include removed level-2 competences on p31-34 for completeness (communicate orally, audit, stats, research…)

VI) Should add something about optional components, emphasizing that the core competences are "Necessary but not sufficient".

VII) Worth stating that we regard all the generic, level-1 and level-2 competences as essential / core for medical graduates in Europe. Could also define more-detailed level-3 competences but would certainly not be core at present.

IX) May want to repeat the Tuning process in several years time to see if the outcomes change over time – perhaps it could be an ongoing process.

X) If funding for Tuning2 is granted, might want to work on what the Dublin descriptors mean for medical education; and also shape the competences identified in Tuning (Medicine) into a product which is easier to apply to curriculum development. Also need further work on defining core competences in Research, and core knowledge for clinical practice.

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to assess clinical presentations, order investigations, make differential diagnoses, and negotiate a management plan'

Ability to recognise and assess the severity of clinical presentations	3.56
Ability to order appropriate investigations and interpret the results	3.39
Ability to make differential diagnoses	3.46
Ability to negotiate an appropriate management plan with patients and carers	3.22

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to provide immediate care of medical emergencies, including First Aid and resuscitation'

Ability to recognise and assess acute medical emergencies	3.77
Ability to provide basic First Aid	3.76
Ability to provide Basic Life Support and Cardio-Pulmonary Resuscitation according to *current* European guidelines	3.76
Ability to treat acute medical emergencies	3.44
Ability to provide Advanced Life Support according to *current* European guidelines	3.15
Ability to provide trauma care according to *current* European (*ATLS)* guidelines	2.91

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to prescribe drugs'

Ability to prescribe clearly and accurately	3.39
Ability to match appropriate drugs to the clinical context	3.36
Ability to review the appropriateness of medication and evaluate the potential benefits and risks	3.30
Ability to prescribe drugs to treat pain and distress	3.21

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to communicate effectively in a medical context'

Ability to communicate with patients	3.75
Ability to communicate with colleagues	3.53
(Ability to communicate orally)	3.49
Ability to communicate in breaking bad news	3.39
Ability to communicate with relatives	3.33
Ability to communicate with disabled people	3.31
Ability to communicate in seeking informed consent	3.29
Ability to communicate in writing (including medical records)	3.24
Ability to communicate in dealing with aggression	3.17
Ability to communicate by telephone	3.08
Ability to communicate with those who require an interpreter	2.96

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to carry out practical procedures (e.g. venepuncture)'

Ability to measure blood pressure	3.62
Ability to carry out venepuncture	3.52
Ability to administer oxygen	3.40
Ability to carry out cannulation of veins	3.37
Ability to carry out subcutaneous and intramuscular injection	3.34
Ability to adminster IV therapy and use infusion devices	3.31
Ability to carry out electrocardiography	3.09
Ability to carry out suturing	3.03
Ability to carry out blood transfusion	3.00
Ability to carry out bladder catheterisation	2.91
Ability to carry out urinalysis	2.78
Ability to move and handle patients	2.73
Ability to carry out *basic* respiratory function tests	2.53

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to work effectively in a health care system and engage with population health issues'

Ability to provide patient care which minimises the risk of harm to patients	3.55
Ability to apply measures to prevent the spread of infection	3.54
Ability to recognise own health needs and ensure own health does not interfere with professional responsibilities	3.29
Ability to conform with professional regulation and certification to practise	3.22
Ability to receive and provide professional appraisal	3.11
Ability to make informed career choices	2.86

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to apply ethical and legal principles in medical practice'

Ability to maintain confidentiality	3.74
Ability to apply ethical principles and analysis to clinical care	3.49
Ability to obtain and record informed consent	3.31
Ability to certify death	3.29
Ability to apply national and European law to clinical care	3.04
Ability to request autopsy	2.88
(Ability to provide evidence to a court of law)	2.48

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to use information and information technology effectively in a medical context'.

Ability to keep accurate and complete clinical records	3.51
Ability to use computers	3.49
Ability to access information sources	3.44
Ability to store and retrieve information	3.26

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to apply the principles, skills and knowledge of evidence-based medicine'.

Ability to apply evidence to practice	3.01
Ability to critical appraise published medical literature	3.00
Ability to define and carry out an appropriate literature search	2.95
(Ability to generate evidence through clinical audit)	2.47
(Ability to apply statistical analysis to data)	2.15

LEVEL 2 COMPETENCES/OUTCOMES

'Ability to assess psychological and social aspects of a patient's illness'.

Ability to assess psychological factors in presentations and impact of illness	3.12
Ability to detect alcohol and substance abuse, dependency	3.11
Ability to detect stress in relation to illness	3.03
Ability to assess social factors in presentations and impact of illness	3.01

KNOWLEDGE OUTCOMES

'Basic Sciences'

Normal function (physiology)	3.55
Normal structure (anatomy)	3.35
Normal body metabolism and hormonal function (biochemistry)	3.13
Normal immune function (immunology)	3.07
Normal cell biology	2.61
Normal molecular biology	2.51
Normal human development (embryology)	2.36

KNOWLEDGE OUTCOMES

'Behavioural and social sciences'

Psychology	2.87
Human development (child/adolescent/adult)	2.76
Sociology	2.41

KNOWLEDGE OUTCOMES

'Clinical Sciences'

Abnormal structure and mechanisms of disease (pathology)	3.40
Infection (microbiology)	3.36
Immunity and immunological disease	3.04
Genetics and inherited disease	2.83

KNOWLEDGE OUTCOMES

'Drugs and prescribing'

use of antibiotics and antibiotic resistance	3.42
principles of prescribing	3.30
drug side effects	3.22
drug interactions	3.18
use of blood transfusion and blood products	3.12
drug action and pharmacokinetics	3.08
individual drugs	2.89
the different types of complementary and alternative medicine and their use in patient care	2.26

KNOWLEDGE OUTCOMES

'Public Health'

disease prevention	3.14
lifestyle, diet and nutrition	2.98
health promotion	2.83
screening for disease and disease surveillance	2.79
disability	2.72
gender issues relevant to health care	2.64
epidemiology	2.61
cultural and ethnic influences on health care	2.55
resource allocation and health economics	2.40
global health and inequality	2.33

KNOWLEDGE OUTCOMES

'Ethical and legal principles in medical practice'

rights of patients	3.30
rights of disabled people	3.16
responsibilities in relation to colleagues	3.11

KNOWLEDGE OUTCOMES

'Role of the doctor in health care systems'

laws relevant to medicine	2.91
systems of professional regulation	2.73
principles of clinical audit	2.59
systems for health care delivery	2.58

PRACTICE SETTINGS

ALL MEDICAL GRADUATES SHOULD HAVE EXPERIENCED CLINICAL WORK IN THESE AREAS

care of acutely ill patients in Casualty / Accident and Emergency units	3.51
care of general (internal) medical patients in medical admission units	3.48
care of general surgical patients in surgical admission units	3.20
care in the community/family practice/primary care	3.13
care for elderly patients	3.08
care for sick children	3.04
care for the dying, palliative care	2.91
care for mentally ill patients	2.83
obstetric and gynaecological care	2.81
care for critically ill patients in Intensive Care Units	2.71
care of patients with specialised medical conditions (eg haematology, renal medicine)	2.56
anaesthetic care	2.54
rehabilitation medicine	2.40
care of patients with specialised surgical conditions (eg cardiac surgery, urology)	2.39

Potential new generic competences

- 1. Ability to work hard despite adversity
  - Tolerance to mental and physical stress
  - Ability to cope with adversity. To think under pressure
  - Adaptation to stress situation
  - Ability to work hard and not complain about working conditions / hours.
  - Ability to tolerate inefficiencies of colleagues and system
  - Psychologically stable and be able to cope with a host of life stresses
  - Ability to manage own stress
  - Ability to work under pressure
  - The ability not to be disheartened by continuous demotivating remarks.
  - High tolerance to frustration, being able to cope with high levels of stress
  - Not to take it personally when patients, in times of trouble, insult or blame the doctor etc

Potential new generic competences

- 2. Ability to manage uncertainty
  - Ability to manage and communicate uncertainty
  - Ability to deal with uncertainty
  - cope with uncertainty in professional practice
  - Tolerating stress and ambiguity
  - Capacity to handle stressful and ambiguous situations
  - Ability to decide under uncertainty

Potential new generic competences

- 3. Numeracy
  - Basic numeracy
  - Adequate level of numeracy
- 4. Business & management skills
  - Management
  - Business management and related questions and expectations
  - Knowledge of business management e.g. to lead a (GP) surgery
  - Accounting programs

Potential new subject-specific competences

- 1. Care of the dying and their families
  - Reflecting on Death, Dying and Bereavement
  - When on palliative care makes more sense.
  - Coping with defeats (Death)
- 2. Ability to manage chronic illness
  - Coping/Living with chronic illness: essential
  - The capacity to ensure follow-up (chronic illness)
- 3. Ability to be patient-centred
  - Ability to respond individually to the patient and his needs.
  - Synergetic view to the patient

Potential new subject-specific competences

- 4. Ability to monitor the performance of colleagues
  - Ability to recognise and report appropriately colleagues experiencing personal or professional difficulties which are impaction on their work.
  - Recognition of importance of recognising unfit practise in a colleague and taking appropriate action
- 5. Psychological treatments
  - Counselling skills
  - Counselling - more than just empathy, ability to guide and counsel without involvement
- 6. Written communication
  - Spelling (sounds simple, but practice teaches us differently)
  - Ability to write down the information gathered from the patient in a medical context
  - Mastering basic documentation,
  - Writing letters

MEDICAL DEGREES AND DEGREE STRUCTURES IN EUROPE

Based on survey results from MEDINE partners in April - May 2007

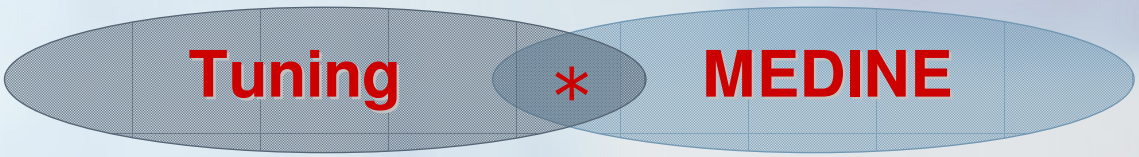
Prepared by Dr Anna-Lena Paulsson, Karolinska Institute, Sweden

Country	Degree	Degree in English	Duration and Structure
Austria	Doctor medicinae universae (Dr.med.univ.)	MD - Doctor of Medicine/Medical doctor	6 years, Continuum
Belgium	Flanders: Bachelor in Medicine/ Master in Medicine; French-speaking: Bachelier en médecine/ Mater en médecine	Degree of Bachelor in Medicine/ Degree of Master in Medicine	7 years: Ba / Ma structure (Ba 3 years/Ma 4 years)
Bulgaria	Magistrar po medicina	Master's Degree	6 years continuum
Czech Republic	MUDr. - Medicinae Universae Doctor	Doctor of General Medicine	6 years continuum
Croatia	Dr.med	Doctor of Medicine	6 years continuum
Denmark	Candidatus/candidata medicinae (cand.med)	Master of Science in Medicine	6 years: Ba/Ma structure (Ba 3 years/Ma 3 years)
Estonia	Arsti kraad	Degree in Medicine	6 years, continuum

Tuning and MEDINE

- MEDINE activities undertaken by 5 Task Forces:
  - **Tuning** (The University of Edinburgh) *
  - **International recognition** (University Antwerp / Charité hospital Berlin)
  - **Quality** (WFME / AMSE)
  - **Transparency** (AMEE)
  - **Research** (Semmelweis University Budapest)

Tuning
Educational Structures
in Europe



M E D I N E

Respondents by category

Category of Respondent	Totals
Academic	464
(recent) Medical Graduate	169
Graduate Employer	19
Current Medical Student	359
Other (e.g. allied health professional, PG student, patient, not declared)	291

Interpreting Survey Results

	Not Important (NI)	Quite Important (QI)	Very Important (VI)	Essential (E)	Response Average
ability to solve problems	1% (11)	6% (75)	34% (432)	**59% (743)**	3.51
Ability to design and manage projects	16% (204)	**50% (620)**	30% (377)	4% (50)	2.22

NI	QI	VI	E
1	2	3	4
			↑

NI	QI	VI	E
1	2	3	4
	↑		

Generic Tuning Outcomes (1/3)

ability to recognise limits and ask for help	3.63
capacity for applying knowledge in practice	3.61
capacity to learn (including lifelong self-directed learning)	3.58
probity (honesty, maintaining good practice)	3.58
ability to make decisions	3.57
ability to solve problems	3.51
critical and self-critical abilities	3.41
interpersonal skills	3.37
concern for quality	3.35
ability to work in a multidisciplinary team	3.27
empathy	3.23

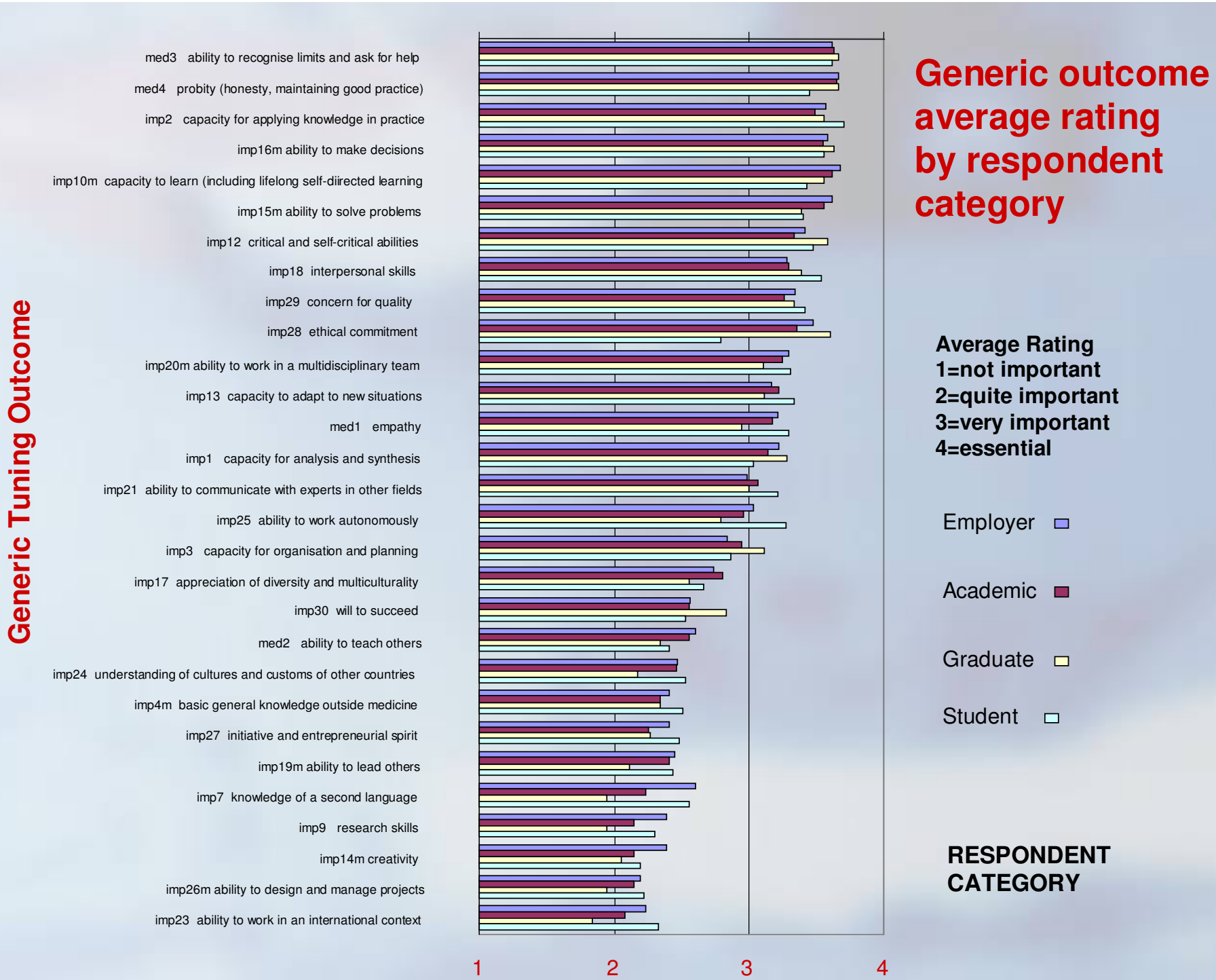
Generic Tuning Outcomes (2/3)

capacity to adapt to new situations	3.22
ethical commitment	3.21
capacity for analysis and synthesis	3.14
ability to work autonomously	3.10
ability to communicate with experts in other fields	3.09
capacity for organisation and planning (including time management)	2.87
appreciation of diversity and multiculturality	2.70
will to succeed	2.58
ability to teach others	2.54
knowledge of a second language	2.51

Generic Tuning Outcomes (3/3)

understanding of cultures and customs of other countries	2.49
ability to lead others	2.45
basic general knowledge outside med	2.45
initiative and entrepreneurial spirit	2.44
research skills	2.33
creativity	2.29
ability to work in an international context	2.24
ability to design and manage projects	2.22

Generic outcome average rating by respondent category

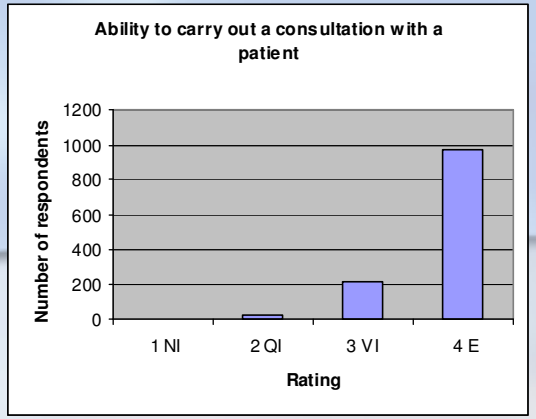


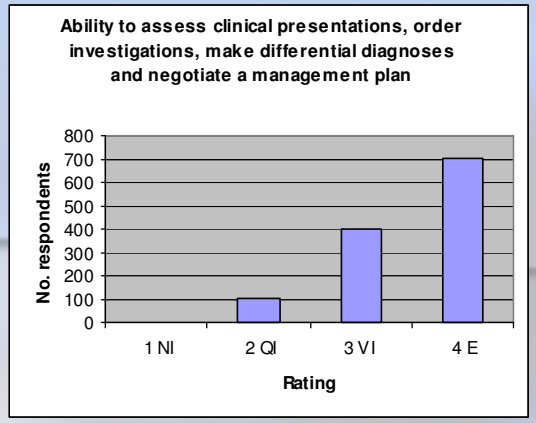
Free-text analysis

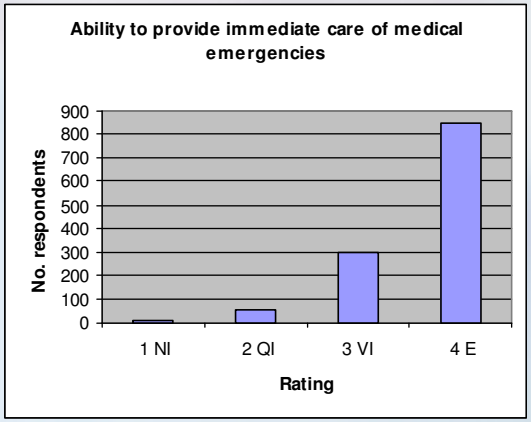
- Compilation by question (not respondent)
- Translation into English
- Separated components of responses
- General thematic analysis
- Consideration with existing outcomes
- Creation of tree node structure in NVivo7
- Systematic categorisation of responses
- Detailed thematic analysis

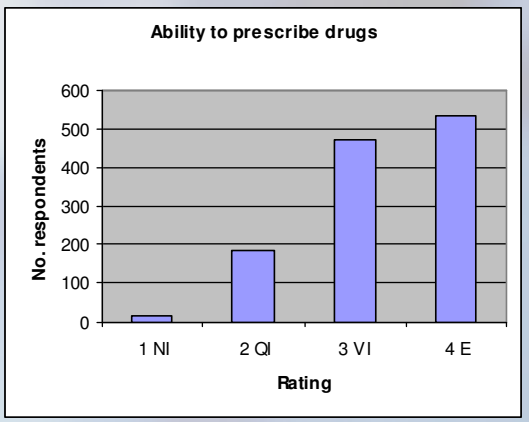
Level 1 –

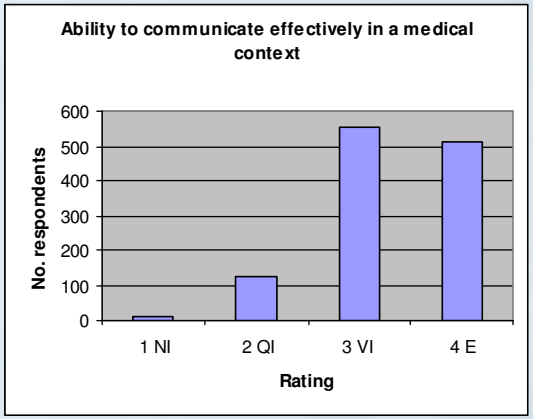
Graphic representation

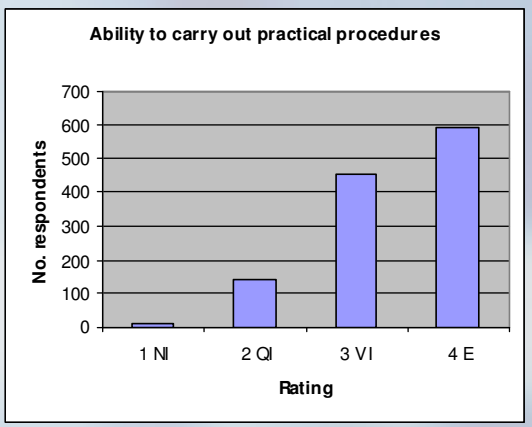






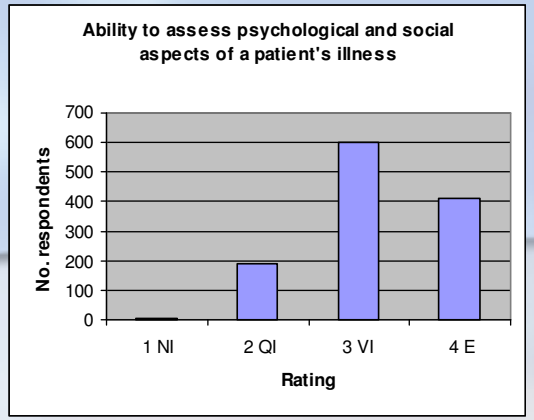


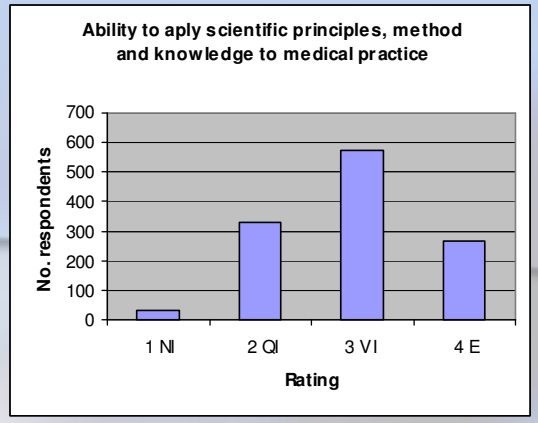


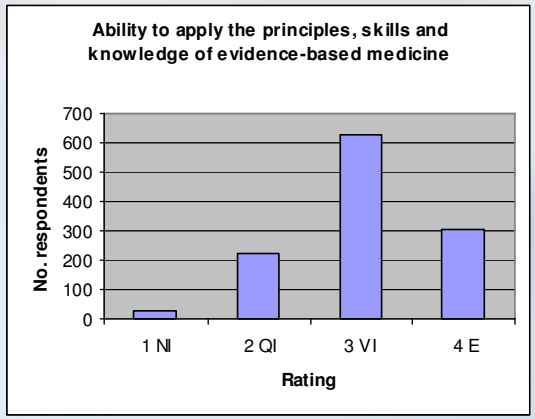


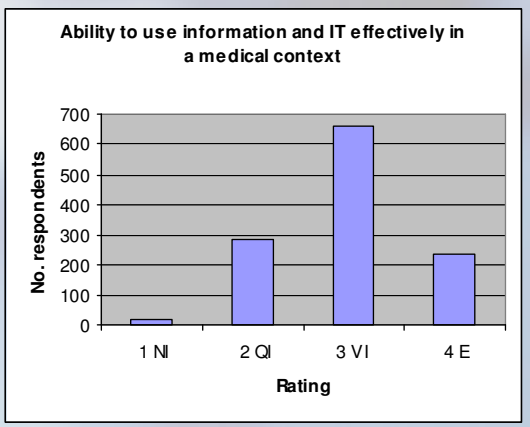
Level 1 –

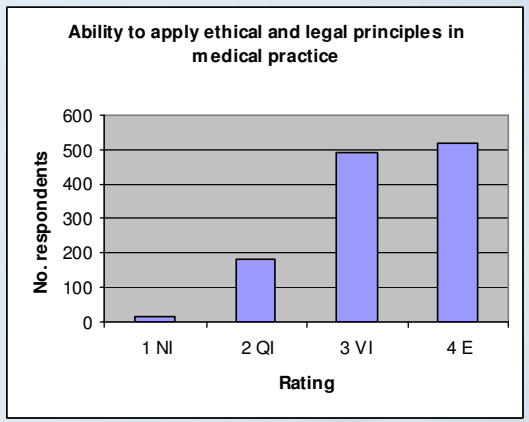
Graphic representation

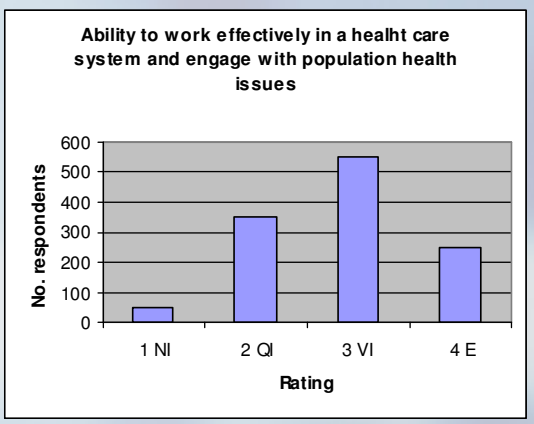


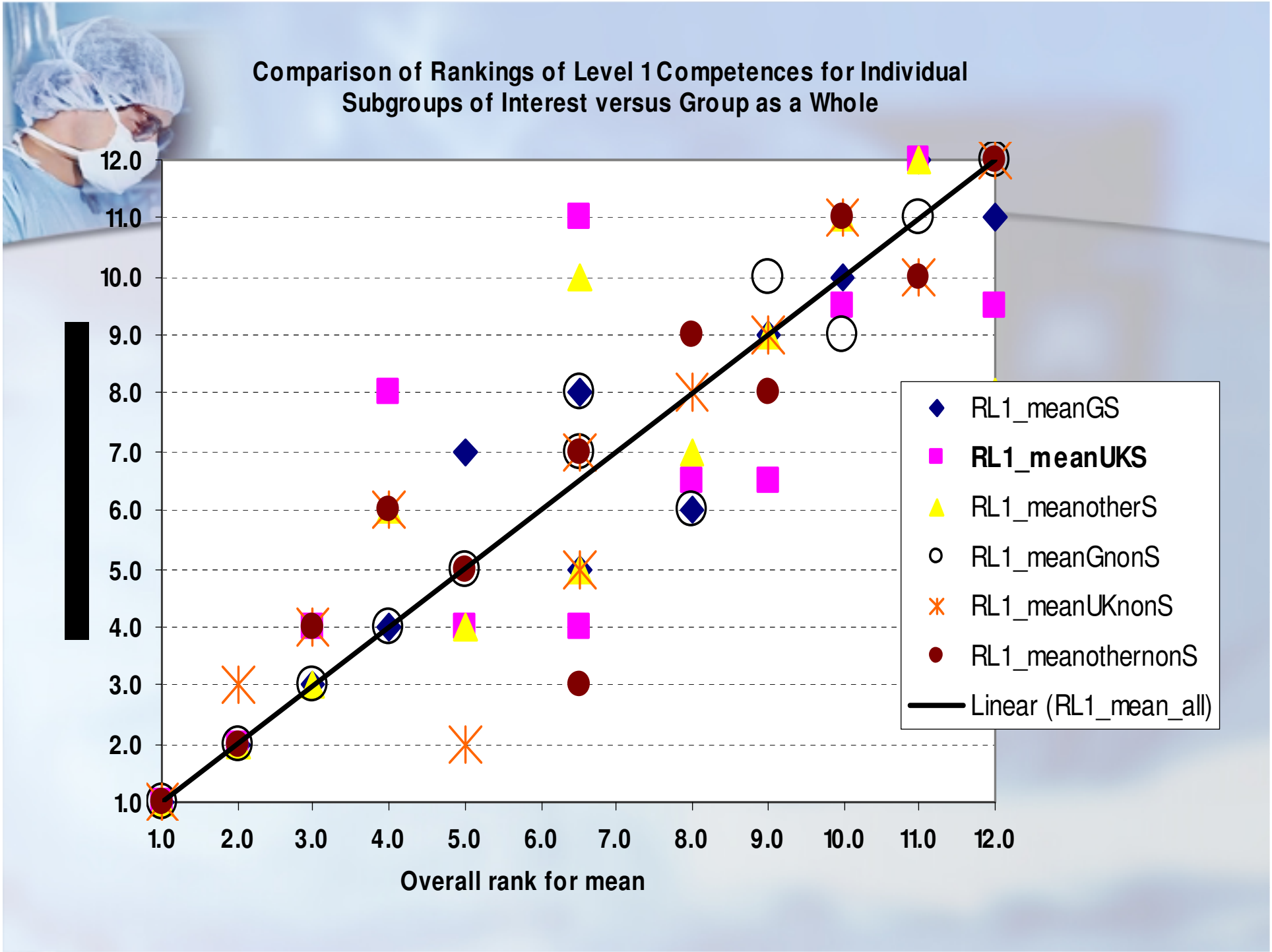











Comparison of Rankings of Level 1 Competences for Individual Subgroups of Interest versus Group as a Whole
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
Overall rank for mean
RL1_meanGS
RL1_meanUKS
RL1_meanotherS
RL1_meanGnonS
RL1_meanUKnonS
RL1_meanothernonS
Linear (RL1_mean_all)

Leik measure of ordinal consensus

poor:	less than or equal to 0.20
fair:	0.21 to 0.40
moderate:	0.41 to 0.60
substantial:	0.61 to 0.80
excellent:	greater than 0.80

LEIK MEASURE OF CONSENSUS

LEVEL 2 OUTCOMES
(N = 74)

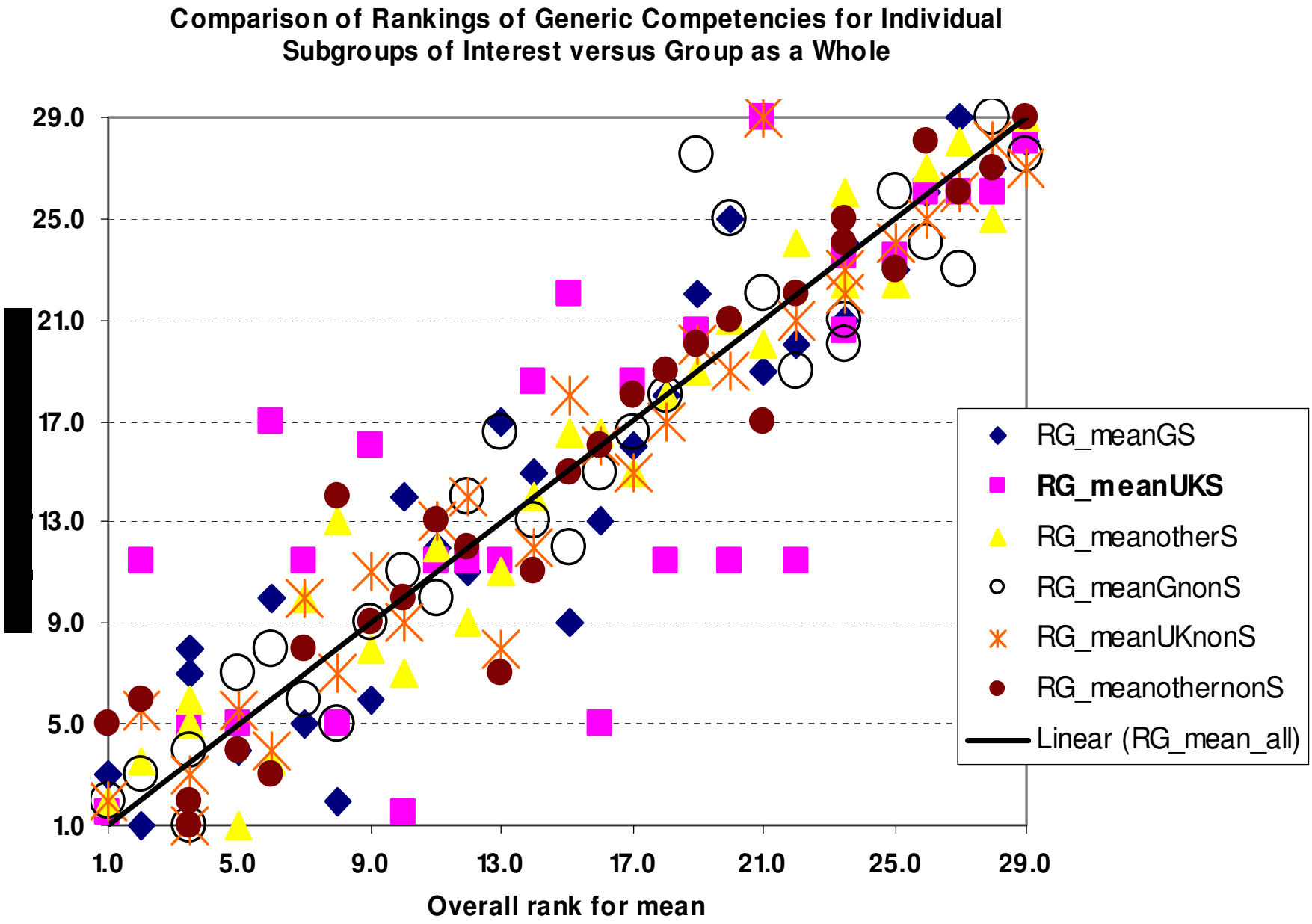
- **Mean 0.63**
- **Range 0.45 – 0.87**

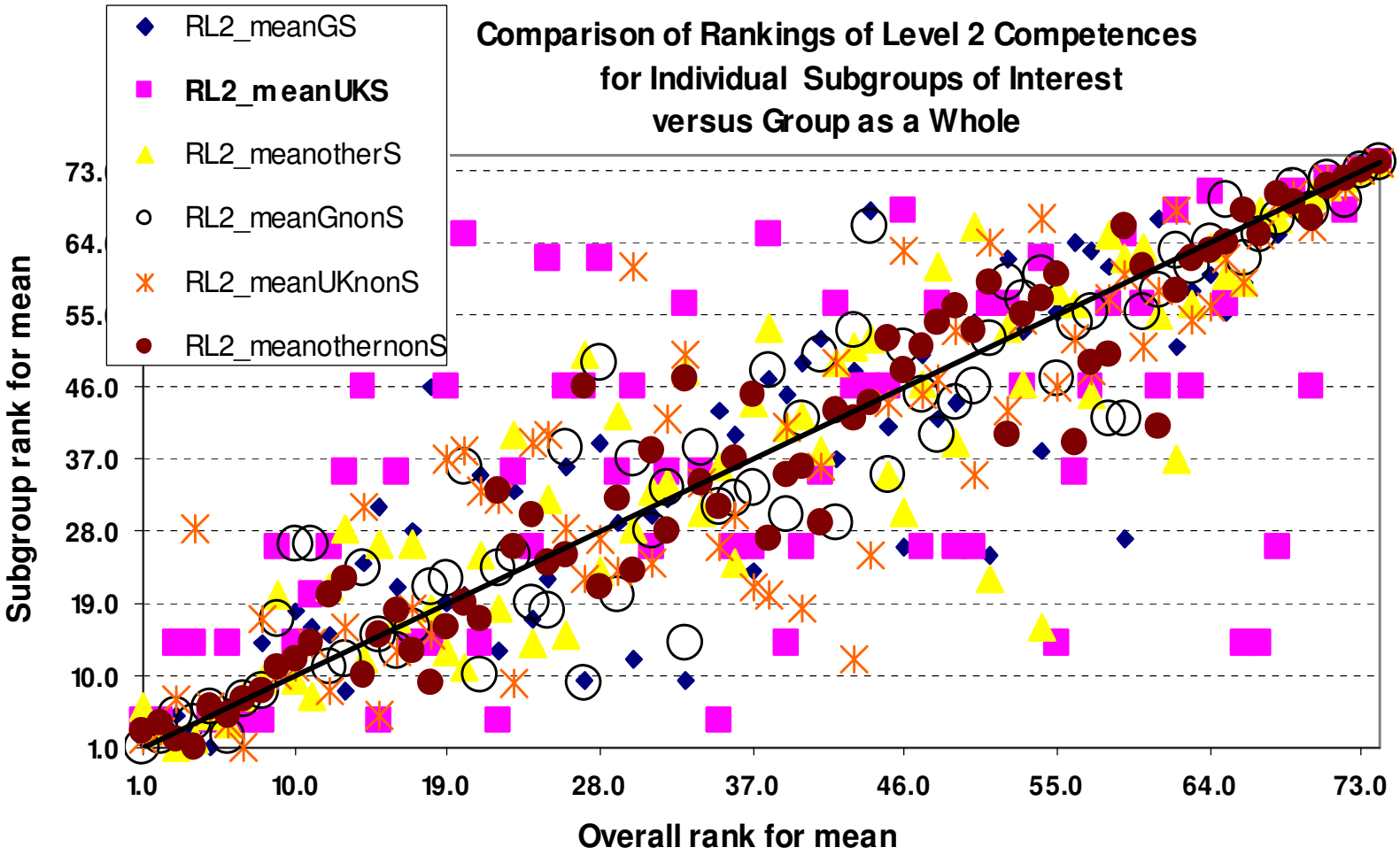
Level 1 outcome	Mean score	Rank by mean	Median score	Rank by median	Leik measure of consensus
Consultation	3.77	1	4.00	2.0	0.85
Emergency care	3.66	2	4.00	2.0	0.77
Presentations and management	3.50	3	4.00	2.0	0.66
Practical procedures	3.36	4	3.00	8.0	0.58
Communication	3.31	5	3.00	8.0	0.64
Prescribing	3.26	6	3.00	8.0	0.60
Ethics/law	3.26	7	3.00	8.0	0.59
Psychological and social medicine	3.17	8	3.00	8.0	0.66
Evidence based medicine	3.02	9	3.00	8.0	0.67
Information and technology	2.93	10	3.00	8.0	0.69
Scientific principles	2.89	11	3.00	8.0	0.63
Population health	2.83	12	3.00	8.0	0.61
					Mean 0.66

Generic outcome	Mean score	Rank by mean score	Median score	Rank by median score	Leik measure of consensus
Knowing limits	3.63	1	4.00	3.5	0.75
Probity	3.61	2	4.00	3.5	0.76
Knowledge into practice	3.58	3	4.00	3.5	0.72
Decision-making	3.58	4	4.00	3.5	0.72
Life-long learning	3.57	5	4.00	3.5	0.71
Solve problems	3.51	6	4.00	3.5	0.71
Self-criticism	3.41	7	3.00	13.5	0.61
Interpersonal skills	3.37	8	3.00	13.5	0.61
Concern for quality	3.35	9	3.00	13.5	0.65
Ethical commitment	3.27	10	3.00	13.5	0.61
Multi-disciplinary teamwork	3.23	11	3.00	13.5	0.64
Adaptability	3.22	12	3.00	13.5	0.67
Empathy	3.21	13	3.00	13.5	0.55
Analysis and synthesis	3.14	14	3.00	13.5	0.71
Communicate with experts	3.10	15	3.00	13.5	0.66
Work autonomously	3.09	16	3.00	13.5	0.69
Organisation and planning	2.87	17	3.00	13.5	0.66
Diversity and multiculturality	2.70	18	3.00	13.5	0.56
Will to succeed	2.58	19	3.00	13.5	0.54
Ability to teach others	2.54	20	3.00	13.5	0.57
Cultures and customs of other countries	2.51	21	2.00	25.0	0.45
General knowledge	2.49	22	2.00	25.0	0.57
Initiative	2.45	23	2.00	25.0	0.60
Leadership	2.45	24	2.00	25.0	0.62
Second language	2.44	25	2.00	25.0	0.60
Research skills	2.33	26	2.00	25.0	0.61
Creativity	2.29	27	2.00	25.0	0.56
Manage projects	2.24	28	2.00	25.0	0.64
Work in international context	2.22	29	2.00	25.0	0.64
					Mean 0.63

ICCS (absolute agreement) obtained from comparison of subgroups with overall groups

Type of competency	Rankings Compared	ICC1	95% CI for ICC
Generic	German students vs entire group	0.942	(0.880, 0.972)
	UK students vs entire group	0.789	(0.596, 0.895)
	other students vs entire group	0.969	(0.936, 0.985)
	German non-students vs entire group	0.951	(0.898, 0.977)
	UK non-students vs entire group	0.960	(0.917, 0.981)
	other non-students vs entire group	0.960	(0.916, 0.981)
L2	German students vs entire group	0.889	(0.830, 0.929)
	UK students vs entire group	0.609	(0.442, 0.735)
	other students vs entire group	0.894	(0.837, 0.932)
	German non-students vs entire group	0.931	(0.893, 0.956)
	UK non-students vs entire group	0.880	(0.815, 0.922)
	other non-students vs entire group	0.957	(0.933, 0.973)


Comparison of Rankings of Generic Competencies for Individual Subgroups of Interest versus Group as a Whole
29.0
25.0
21.0
17.0
13.0
9.0
5.0
1.0
1.0
5.0
9.0
13.0
17.0
21.0
25.0
29.0
Overall rank for mean
RG_meanGS
RG_meanUKS
RG_meanotherS
RG_meanGnonS
RG_meanUKnonS
RG_meanothernonS
Linear (RG_mean_all)


Comparison of Rankings of Level 2 Competences
for Individual Subgroups of Interest
versus Group as a Whole
RL2_meanGS
RL2_meanUKS
RL2_meanotherS
RL2_meanGnonS
RL2_meanUKnonS
RL2_meanothernonS
Subgroup rank for mean
Overall rank for mean
1.0
10.0
19.0
28.0
37.0
46.0
55.0
64.0
73.0

THE EUROPEAN HIGHER EDUCATION AREA

Joint Declaration of the European Ministers of Education

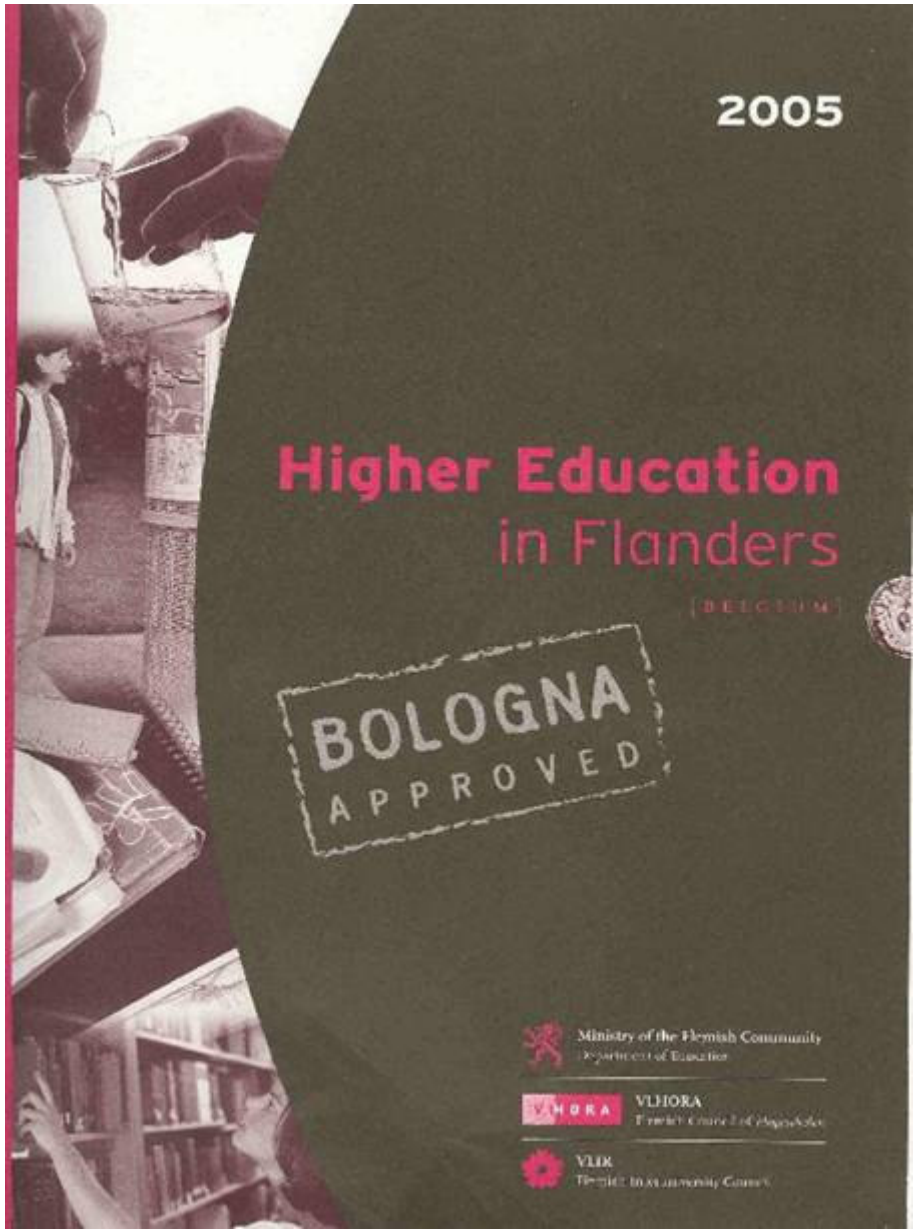
Bologna, 19th June 1999

… We engage in co-ordinating our policies to reach in the short term, and in any case within the first decade of the third millennium, the following objectives …….

Adoption of a system of easily readable and comparable degrees, also through the implementation of the Diploma Supplement, to promote European citizens employability and the international competitiveness of the European higher education system

Adoption of a system essentially based on two main cycles, undergraduate and graduate*. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification.
The second cycle should lead to the master and/or doctorate degree as in many European countries.

* later ↑ to three cycles



2005

Higher Education in Flanders

BELGIUM

BOLOGNA APPROVED

Ministry of the Flemish Community
Department of Education

VLHORA
Flemish Council of Higher Education

VLIR
Flemish Interuniversity Council

BOLOGNA 3 CYCLE MODEL

3rd cycle
"Doctor"

2nd cycle
"Master"

1st cycle
"Bachelor"

- Dublin descriptors

bologna
process

benelux
2009

Subject-specific outcomes - Nursing

A Bachelor in Nursing / Nursing science is able to:

Intellectual competences:

• describe, formulate and communicate profession–related issues and options for taking action

• analyse profession-oriented issues theoretically and consider them in practice

• structure own learning

Professional and academic competences

• apply and evaluate different methodologies relevant to nursing

• demonstrate insight into central theories, methodologies and concepts within the nursing profession

• document, analyse and evaluate the various types of nursing practice

• utilize research and development to develop evidence-based nursing and nursing activities

Practical competences

• demonstrate proficiency in the practical nursing competencies/ skills required for the registration or licence

• make and justify decisions based on his or her own nursing experience

• show personal integrity and act within the framework of nursing ethics

• demonstrate ability and willingness to function in a multidisciplinary setting

• participate and conduct development work / projects relevant to the nursing profession

Appendix C

Membership of Steering Group, Tuning Project (medicine), 2004 - 07

Allan Cumming (Chair)
Michael Ross (2005-7)
Helen Cameron
Harry Campbell
Gaynor Lloyd-Jones (2004-5)
Henry Walton
Phillip Evans
Kenneth Boyd

Membership of Task Force, Tuning Project (Medicine), 2004 – 07

Allan Cumming (Task Force leader)
Helen Cameron
Harry Campbell
Chris van Schravendijk
Ben Griffith
Paul de Roos
Martin Lischka
Paola Arslan
Hilde Groenen
Marta Ferrer
Robert Snipes
Swetlana Philipp
Frederic Manresa
Gregory Hautois
Hans Sjöström
Husseyn can Ikizler
Vitalijs Zirdzins
Kathleen Merten
Judit Lak
Gaynor Lloyd-Jones (Coordinator, 2004-5)
Henry Walton
Kenneth Boyd
Jose Carreras
Angelija Valenciute
Aileen Patterson
Lukas Plank
Sabri Kemahli
Melih Elcin
Maria-Trinidad Herrero
M Lauwerens
Maria Grazia Manzo
Giovanni Ricevuti
Griet Peeraer
Samo Ribaric
Ireneusz Krasnodebski
Jean Michel Boiron
Joseph Cacciottolo
Yavuz Coskun
Michael Ross (Coordinator, 2005-7)
Phillip Evans
Claudia Kiessling
Colette Creusy
Pirjo Lindstrom-Seppa
Jadwiga Mirecka
Jorgen Nordenstrom
Karel van Liempt
Suzanne Hardy
Lars Kayser
Virpi Parkkila
Manuel Joao Costa
Peter Galajda
Yavuz Coskun
Manuel Vijande
Sari Ponzer
Virfi Tauru
Jurate Sipylaite

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- Jose Carreras for acting as liaison with Tuning Latina America (medicine), and Collette Creusy for acting as liaison with the EUROPET Network in paediatrics
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- the Coordinating Office, Executive Board and Members of the MEDINE Thematic Network for supporting the work of the Tuning Project (medicine)
- the Task Force members and national contacts for supporting the workshops, web-based opinion survey, and other work of the Task Force
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- all who responded to the web-based opinion survey
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