

THE FUTURE OF MEDICAL SCHOOLS IN OUR CHANGING WORLD

Professor Allan Cumming

**Dean of Students, College of Medicine and
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Academic Network for Medical Education in Europe**





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FEWER BOUNDARIES

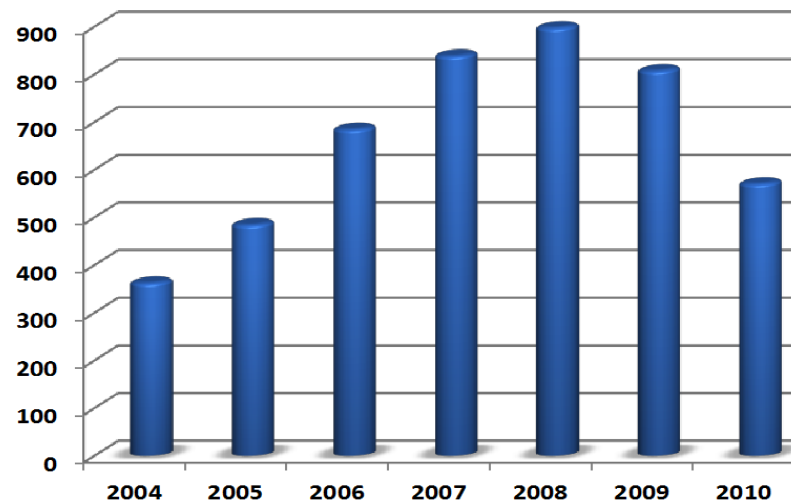
- The language barrier.....



FEWER BOUNDARIES

- Student mobility – does not happen spontaneously

Number of outgoing students (35 faculties for 5299 students)





Medical students across Europe ***Move to improve!***



If you want to:

- ✓ gain international experience
- ✓ discover new cultures, new languages, new friends
- ✓ learn to deal with medical practice in other European countries



**Study abroad through the
European Credit Transfer System (ECTS)**

Contact your medical school or learn more at www.medine2.com

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MEDINE2,
Work-package 2



Medical students across Europe ***Move to improve!***

Medical
Education
IN 2
Europe

Wenn Sie Lust haben:

- ✓ internationale Erfahrung zu gewinnen
- ✓ neue Kulturen, Sprachen, Freunde zu entdecken
- ✓ sich mit der medizinischen Praxis anderer europäischer Länder vertraut zu machen



Studieren Sie im Ausland mit dem European Credit Transfer System (ECTS)

Mehr Information bei Ihrer medizinischen Fakultät oder unter
www.medicine2.com

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**MEDINE2,
Work-package 2**

SHARING BEST PRACTICE

- AMEE, Ottawa Conference, academic networks, national associations, journals, blogs, etc..
- Medical education as a career



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WP5 Remit

To identify the current positions,
aspirations and actions of European
medical schools relating to trends in
medical education

Respondents asked:

- Current position on the trends in their institution
- Vision as to the desirable developments in medical schools over next 3-5 years

Curriculum trends/developments

The Top 10 future trends/developments

Curriculum committees	1.89
Learning outcomes defined	1.87
Outcome based	1.86
Professionalism & attitudes	1.87
Communication skills	1.87
Critical thinking	1.85
Evaluation of evidence	1.81
Independent learning	1.83
Small group work	1.83
Curriculum evaluation	1.84

Curriculum trends/developments

The Top 10 changes

Harmonising in Europe	+0.77
Medical errors	+0.75
Use of virtual patients	+0.75
Individualised learning	+0.68
Use of Portfolios in assessment	+0.67
Teaching as basis for promotion	+0.74
Professionalism of teaching	+0.69
Trained teachers	+0.69
Assessment of education environment	+0.77

CONSENSUS-BASED, OUTCOME-DRIVEN CURRICULA

Uses of Competency-based Education

(Norman G et al, Journal of Graduate Education, March 2014)

1. Guiding learning for a student or resident
 2. Giving daily feedback to residents and students at the bedside and in clinic
 3. Making pass/fail decisions at the end of a rotation and the end of a program
 4. Making pass/fail decisions for licensure and Certification
- Outcome- or competency-based education is a vehicle which promotes and legitimises mobility



The Tuning (medicine) project

Establishing a
Europe-wide
consensus on core
learning outcomes
for medical
degrees

www.tuning-medicine.com



Learning Outcomes/
Competences for
Undergraduate Medical
Education in Europe

The Tuning Project (Medicine)

MEDINE1;
MEDINE2,
Work-packages
3, 4

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**





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Executive summary

Background

Definitions - learning objectives,
outcomes and competences

The Tuning Project (Medicine)

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

Level 1

Level 2

Comment

Using the Tuning (Medicine)
learning outcomes

References

Appendix A

Appendix B

Appendix C

Acknowledgements

LEARNING OUTCOMES/COMPETENCES FOR UNDERGRADUATE MEDICAL EDUCATION IN EUROPE

THE TUNING PROJECT (MEDICINE)



Prepared with the support of a Grant from the European Commission No. 114063-CP-1-2004 -1- UK- ERASMUS - TNPP Allan Cumming, Michael Ross

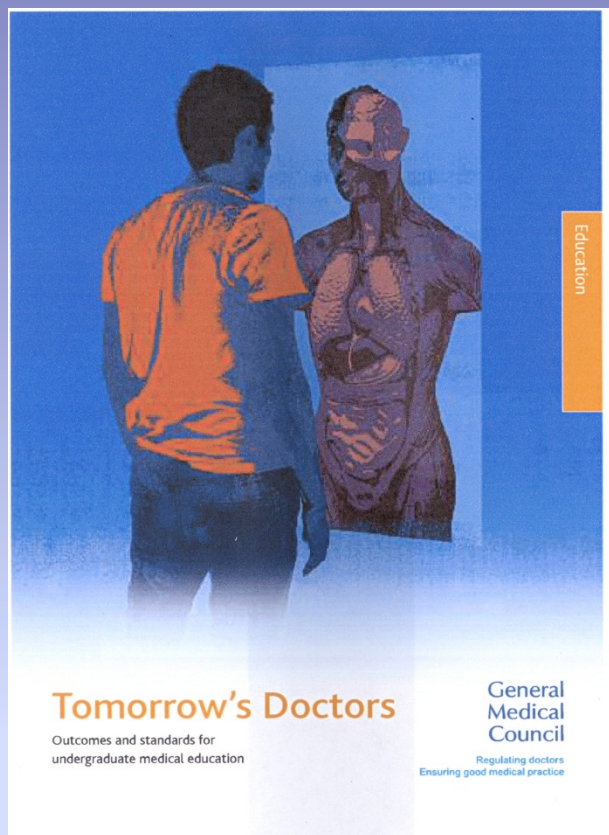
On behalf of the Tuning Project (Medicine) Steering Group and Task Force 1 of the MEDINE Thematic Network

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USE OF “CONSENSUS” OUTCOMES AT NATIONAL LEVEL

The doctor as a practitioner

Carry out a
consultation
with a
patient

Diagnose
and
manage
clinical
presentations

Communicate
effectively
in a medical
context

Provide
immediate
care
of medical
emergencies

Prescribe
drugs safely,
effectively
and
economically

Carry out
practical
procedures
safely
and
effectively

Use
information
effectively

Main Menu

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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

GLOBAL ENGAGEMENT

- Partnerships and consortia
- Research, teaching and training, clinical medicine
- Challenge of diverse contexts.....



GOVERNANCE AND ACCREDITATION

- Increased public and legal scrutiny of medical school education and training
- Accountability for patient safety

PATIENT SAFETY

- Use of simulation, role play
- “student assistants”
- Assessment of competence at graduation
- De-coupling of degrees from licensure



The “Clinical Skills” agenda

IMPORTANCE OF ASSESSMENT

- The knowledge is “out there”
- “teaching” is passé
- Tell the students what they have to learn then make sure they have done it....
- + Design a student experience which inspires and motivates them

Good assessment:

- Valid
- Reliable
- Fair
- Practical

Reliability: on the reproducibility of assessment data

STEVEN M DOWNING

CONTEXT All assessment data, like other scientific experimental data, must be reproducible in order to be meaningfully interpreted.

PURPOSE The purpose of this paper is to discuss applications of reliability to the most common assessment methods in medical education. Typical methods of estimating reliability are discussed intuitively and non-mathematically.

SUMMARY Reliability refers to the consistency of assessment outcomes. The exact type of consistency of greatest interest depends on the type of assessment, its purpose and the consequential use of the data. Written tests of cognitive achievement look to internal test consistency, using estimation methods derived from the test-retest design. Rater-based assessment data, such as ratings of clinical performance on the wards, require interrater consistency or agreement. Objective structured clinical examinations, simulated patient examinations and other performance-type assessments generally require generalisability theory analysis to account for various sources of measurement error in complex designs and to estimate the consistency of the generalisations to a universe or domain of skills.

CONCLUSIONS Reliability is a major source of validity evidence for assessments. Low reliability indicates that large variations in scores can be expected upon retesting. Inconsistent assessment scores are difficult or impossible to interpret meaningfully and thus reduce validity evidence. Reliability coefficients allow the quantification and estimation of the random errors of measurement in assessments, such that overall assessment can be improved.

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KEYWORDS education, medical, undergraduate/standards; educational measurement/standards; reproducibility of results.

Medical Education 2004; **38**: 1006–1012
doi:10.1046/j.1365-2929.2004.01932.x

INTRODUCTION

This article discusses reliability of assessments in medical education and presents examples of various methods used to estimate reliability. It expands the brief discussion of reliability by Crossley *et al.*¹ in an earlier paper in this series and discusses uses of generalisability theory, which have been described in detail elsewhere.^{2–4} The emphasis of this paper is applied and practical, rather than theoretical.

What is reliability? In its most straightforward definition, reliability refers to the reproducibility of assessment data or scores, over time or occasions. Notice that this definition refers to reproducing scores or data, so that, just like validity, reliability is a characteristic of the result or outcome of the assessment, not the measuring instrument itself. Feldt and Brennan⁵ suggest that: 'Quantification of the consistency and inconsistency in examinee performance constitutes the essence of reliability analysis.' (p 105)

This paper explores the importance of reliability in assessments, some types of reliability that are commonly used in medical education and their methods of estimation, and the potential impact on students of using assessments with low reliability.

THE CONSISTENCY OF ASSESSMENT DATA

One fundamental principle of the scientific method is that experiments must be reproducible in order to be properly interpreted or taken seriously. If another



[1]

62% - pass

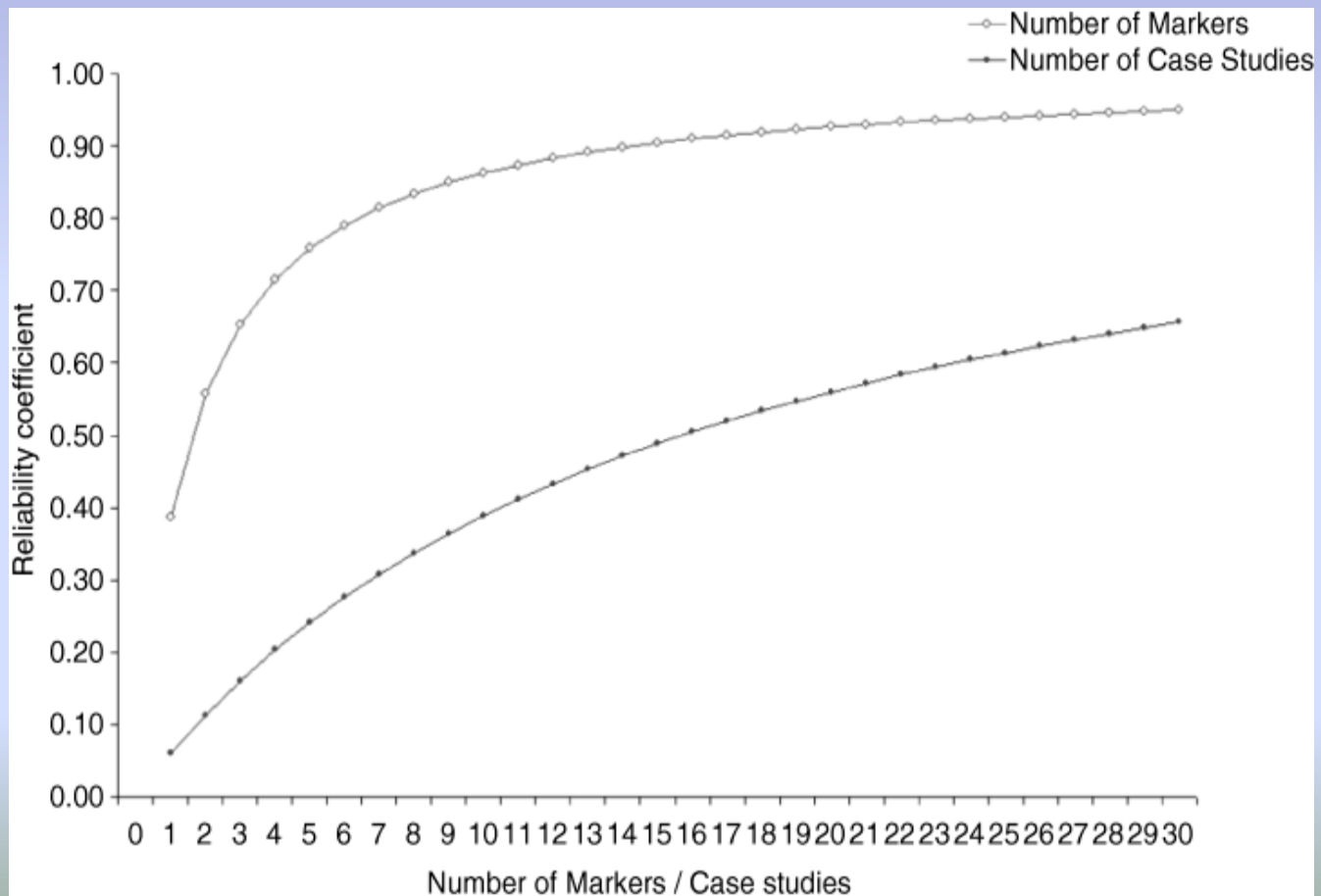


[2]

58% - fail

Generalisability Theory

$$R = \sigma^2 \text{ subjects} \div (\sigma^2 \text{ subjects} + \sigma^2 \text{ examiners} + \sigma^2 \text{ error})$$



←MEDICAL EDUCATION.....RESEARCH→

- Old model – loose alliance of biomedical scientists, clinical academics, and clinicians
- New model – teachers in Medical Schools, researchers in Institutes
- Professionalisation of medical teaching and training
- But – give students opportunities to experience medical research and gain relevant skills

ROLE OF INFORMATION TECHNOLOGY

- IVMEDS - R.I.P.
- IT integrated into medical education and training at all levels
- Move to shared platforms (aid to mobility)

Welcome to EEMeC

Edinburgh Electronic Medical Curriculum



Welcome to EEMeC, the Edinburgh Electronic Medical Curriculum.

EEMeC is an online intuitive learning environment which supports the undergraduate MBChB programme here at the University of Edinburgh.

For the student, it allows securely protected access to searchable information relating to the curriculum; for the clinical teacher, it enables information and resources to be placed in dedicated spaces to assist the student's progress through the programme.

Visitors to the site are warmly welcomed.

EEMeC is currently in the process of a transformation, and although most areas of the site are live, parts may be subject to change. To read more about the changes happening in EEMeC visit the [New EEMeC Information pages](#).



Chancellor's Building and main entrance to the Royal Infirmary, Little France.

News

UpToDate online

The outstanding online resource UpToDate in Medicine is now available on UoE networks and from home...



[Read more...](#)

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Other Challenges

- i. Ethics of medical education – e.g plagiarism, collusion
- ii. “Fitness to Practise”
- iii. Demography of the medical profession, widening access
- iv. Remote and rural practice
- v. Accelerated medical courses, graduate entry
- vi. Changes in postgraduate training
- vii. Complementary and Alternative Medicine
- viii. Changes in health service delivery e.g. multi-disciplinary working

News roundup

A quarter of UK students are guilty of plagiarism, survey shows

London Lynn Eaton

The problem of plagiarism among university students in the United Kingdom, including those in medicine, came under the spotlight at a conference last week organised by the UK Plagiarism Advisory Service.

Intimate examinations and other ethical challenges in medical education

Medical schools should develop effective guidelines and implement them

In this issue, Coldicott et al report an exploratory survey that shows, among other findings, that up to a quarter of intimate examinations in anaesthetised or sedated patients seem not to have had adequate consent from patients (p.97).¹ This paper will generate a firestorm of controversy, wide media interest, and perhaps even calls for a public inquiry. Through the controversy, let us keep one point uppermost in mind: identifying the problem is only half the battle—the other half is coming up with an effective solution.

The fact that this report has been published at all represents a triumph of academic freedom. In particular, Coldicott, a medical student, deserves high praise for seeing this controversial study through to publication. The medical school examined in the study is probably not the only medical school in the world with similar practices, and the authors and their institution have done patients and the medical community a service by highlighting this problem.

Education and debate
p.97

BMJ 2003;326:92-3

62

BMJ VOLUME 326 11 JANUARY 2003 bmj.com

Downloaded from bmj.com on 3 November 2005

Editorials

Ensuring medical students are “fit for purpose”

It is time for the UK to consider a national licensing process

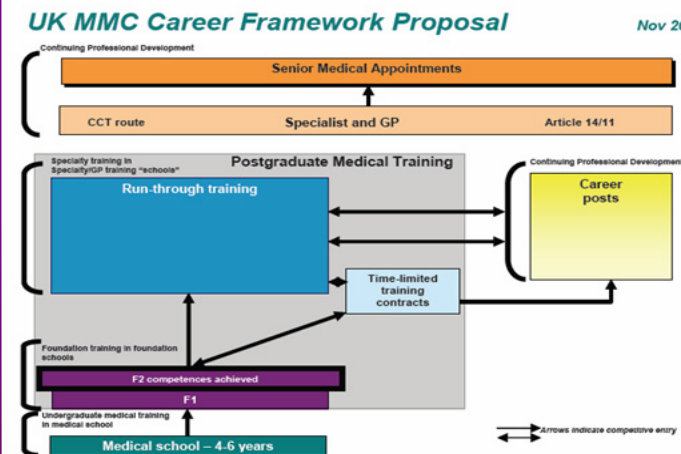
“The intent to develop liberally educated graduates, rather than competent technicians, is what makes a university a university.”¹

This statement stands to be challenged. Postgraduate medical training in the United Kingdom is undergoing profound change as the Modernising Medical Careers project introduces a generic compe-

Scientific Meeting 2005; www.asme.org.uk/conf_courses/2004/docs_pix/asmf04). Comparison of performance by medical school in the examination for membership of the Royal College of General Practitioners (MRCGP) shows a marked difference in candidates' achievements when analysed by medical school of qualification.⁶ Evidence also suggests that student training requirements are not uniformly addressed: in

MMC Proposal

This diagram summarises the intended future structure of the MMC proposals:



“ The earth is a dynamic platform and restlessness is part of its nature. Slow or fast, change is inevitable. Nothing is certain except change. ”

National History Museum, London

Obstacles to change

Highly rated

16h	There are conflicting interests for the teacher between research and/or clinical care.	2.5	50.8%
16g	The teacher's work in the field is not incentivised, valued or rewarded.	2.5	50.0%
14e	Teachers do not have sufficient experience and are not trained to implement the new approach.	2.4	46.1%
15d	Implementing the change will increase the staff workload.	2.4	48.9%
13b	A conservatism, rigidity and reluctance to change.	2.3	46.5%



SO! - THE MEDICAL SCHOOLS OF THE FUTURE...

- Fewer boundaries
- Sharing best practice
- Globally engaged
- Consensus-based, outcome-driven curricula
- Accountable, with appropriate governance and accreditation processes

- Patient safety a major concern
- Assessment a key issue
- Professional teachers/assessors
- Evolved use of Information Technology
- Reactive to change



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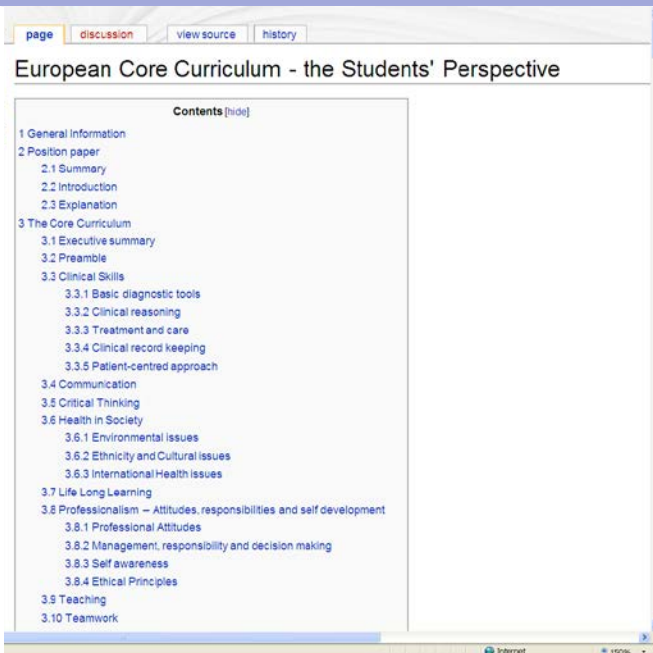
What do medical students think?

"As you know, Europe is composed of many countries, each with different qualities of education. There is no single blanket medical system in Europe. There's simply a huge range out there and it's hard to try to compare. The focus is generally answering the problems at home and directed towards their own cultures."

<http://forums.studentdoctor.net/>, 26/12/2010

WHAT DO OUR STUDENTS THINK?

“Imagine a future where one could train in the medical school of Europe and subsequently be employed by the European Health Service. Surely this is the stuff of fiction? Well, probably, but at the recent conference inroads were made to understand how medical education differs throughout Europe, with the aim of shaping a future where the medical community is able to work in a Europe without borders.”



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3.6.3	International Health issues
3.7	Life Long Learning
3.8	Professionalism – Attitudes, responsibilities and self development
3.8.1	Professional Attitudes
3.8.2	Management, responsibility and decision making
3.8.3	Self awareness
3.8.4	Ethical Principles
3.9	Teaching
3.10	Teamwork

Sarah Dolling and Charlotte Mackay

MEDINE Conference 2007: A Student's Perspective. The Higher Education Academy Newsletter 01.15, 2008

Lengths of Medical Education across Europe

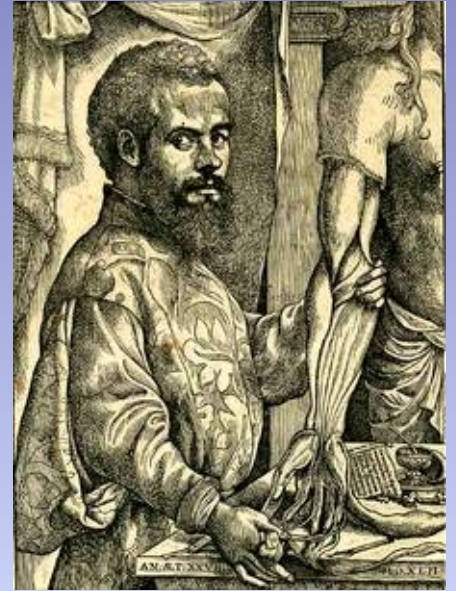
Country	Basic Medical Education (years)	Internship (years)	Specialist Training in Surgery (years)
Denmark	6	1	5.5
Finland	6 <i>(incl. 6 months internship)</i>	-	6
France	6	-	4
Germany	6 <i>(incl. 1 year "practisches Jahr")</i>	-	6
Holland	6	-	6
Sweden	5.5	1.5	5
UK	5	2	6

Measures that may improve reliability of assessment

- Double, triple or more -marking of assessments
- Increased number of assessments
- Increased duration of assessments
- Reduced number of markers
- Simplified marking scheme with fewer grades
- Standard-setting e.g. modified Angoff
- Standards explicit to markers and students
- Staff development meetings of assessors to discuss standards
- Etc

Andreas Vesalius

- Born **Brussels** 1514
- Studied in **Leuven, Paris, Padua**
- Taught in **Padua, Pisa, Bologna, Basel**
- Travelled Europe as Imperial Physician to Charles V - heir to the German Hapsburgs, House of Burgundy, and King of Spain
- Died in **Greece** age 49



De Humani Corporis Fabrica (Fabric of the Human Body) Vesalius, 1543

State-funded vs Private?

- Is medical education a form of inherited wealth?
- All schools accept fee-paying students
- Will new private schools be centres of innovation? – or cut-price mimics?

The Student Experience

- From application/selection to graduation and beyond
- Student satisfaction surveys, league tables
- Personal tutoring
- Communities of learning
- Pastoral care

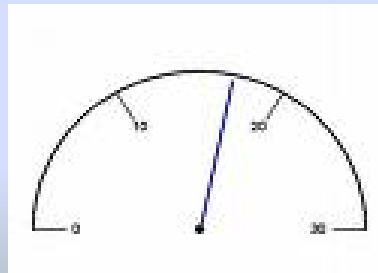
Undergraduate medical education - different governance models

- State regulation and control (e.g. Germany)
- State-sanctioned regulation by the medical profession (e.g. United Kingdom)
- Control by Universities, including post-graduate training (e.g. France)
- Independent medical schools + national licensing examination (e.g. USA)

regulation and accreditation

state-funded

standard curriculum



autonomy

private

free choice of curriculum

MEDINE 2 WORKPACKAGES

1. MEDINElingua – medical language learning (*Berlin*)
2. Toolkit to promote openness and mobility in medical education and training in Europe (*Brussels/ECTS MA*)
3. Tuning Process for medical education (*Edinburgh*)
4. Tuning 1st cycle degrees in medicine (*Edinburgh*)
5. Curriculum trends in medical education in Europe in the 21st century (*AMEE*)
6. Integration of the Bologna Process within medical schools in Bologna countries (*AMEE*)
7. Integration of the research component in European medical education and Tuning 3rd Cycle degrees in medicine (*Brussels*)

Medical
school



Aim - “produce a
good doctor”

Competences –
can communicate
effectively,
manage illness,
etc



Graduate

Graduating outcomes

The Programme

Learning outcomes

Learning outcomes

Learning outcomes

Learning outcomes

Learning outcomes

Learning outcomes

Learning outcomes

Student

Aim - “become a
good doctor”

