

**European Module**  
**EMUTOM**  
 for Undergraduate Teaching of Occupational Medicine

**L. Braeckman**, M. Valcke, P.B.A. Smits, F.J.H. Van Dijk,  
 J.F. Gehanno, E.A. Pauncu, F. Popescu, M. Hanna, P. Bulat

Department of Public Health, Ghent University, Belgium

Final conference September 24, 2012 – Timisoara, Romania

**Introduction**

All medical doctors, whichever speciality they practice, have a key role in the prevention, diagnosis and treatment of work-related conditions and the promotion and maintenance of good health, but their training in occupational medicine is usually limited.

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**Introduction**

Preparatory discussions at several occasions:

- European Association of Schools of Occupational Medicine (EASOM)
- Leuven 2008 – retirement Raphael Masschelein
- Articles published in the Dutch journal TBV, december 2008
- International Commission on Occupational Health, subcommittee on education and training Glasgow 2008.

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**Introduction**

**RESEARCH**

**Occupational medicine in the basic curriculum**

Peter Bate  
 J Occup Environ Med. 2011 Nov;53(11):1258-61.

**Compulsory teaching of occupational health: impact on attitude of medical students in Brazil and Germany.**  
 Russ P, Strümpell S, Carvalho D, Zander S, Smits P, Nowak D, Radon K.  
 Int Arch Occup Environ Health. 2012 Jan;85(1):81-7.

**Int Arch Occup Environ Health 2007.**  
**European dissemination of a web- and case-based learning system for occupational medicine: NetWoRM Europe.**  
 Bate P, Braeckman L, Van der Linden M, Marinova-Larsen B, Fischer M, Nowak D, Radon K; NetWoRM group.

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**Introduction**

- WHO “Global Strategy on Workers’ Health”, 2007
- Europe : targets for the EU in 2020

**EDUCATION & TRAINING**

**Strategic Framework for education and training**  
 Policymakers of the European level have recognised that education and training are essential to the development of labour's knowledge, mobility and economy. The EU's statutory employers' committee working together and leading from each other.

EU education and training policies have gained impetus since the adoption of the Lisbon Strategy in 2000, the EU's overarching programme focusing on growth and jobs. The strategy recognised that knowledge and the acquisition of skills are the EU's most valuable assets, particularly in light of increasing global competition.

EU Member States and the European Commission strengthened or updated in 2009 with **Strategic Framework for European cooperation in education and training (ET 2020)** follow-up to the earlier **Education and Training 2010 work programme** launched in 2006.

The approach recognises that high quality pre-primary, primary, secondary, higher and vocational education and training are fundamental to Europe's success. However, in a rapidly changing world, lifelong learning needs to be a priority – in the first to employment, economic recovery and allowing people to participate fully in society.

With each Member State responsible for its own education and training systems, inter- and cross-sectoral actions are deemed to support national actions and build address common.

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**Objectives**

EMUTOM is a project aimed at enhancing collaboration between five (at start six) European medical faculties through the design of a module for teaching health and work issues that allows for harmonisation and transparency in terms of competencies and learning outcomes.



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## Writing and submitting project proposal

- The lonely cowboy .....
- The lonely writer .....

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## Writing and submitting project proposal

- Submission 28/2/2010
- Decision 20/7/2010
- Start 1/10/2010 – End 30/9/2012

WP1	Management	Project management
2	Development	Development of the Module
3	Quality Plan	Quality assurance
4	Dissemination	Project promotion and dissemination
5	Exploitation	Exploitation of results

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## Funding and Partners

Funding :  Education and Culture DG  
Lifelong Learning Programme

Partners :  

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## Module aims

- To increase awareness and
- To provide a practical understanding of work and health related issues
- To inform and enthuse students about the field of occupational medicine and health

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## Learning objectives

- To provide undergraduate students in medicine and health sciences with sufficient knowledge, appropriate skills and attitudes in dealing with work-related issues
  - understand the impact of health and disease on work and vice versa (Knowledge)
  - take an occupational history (Skills)
  - adopt a preventive attitude when considering work and health issues (Attitude),.....

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## Methods (1)

- A questionnaire survey to assess the level and content of the teaching of OM in the undergraduate medical curricula across Europe.
- A needs-analysis : open answer questionnaire to key players in the field (patients, GPs, OPs, specialists,...) and compare the answers with the ideas and proposals put forward by the academics.

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## Methods (2)

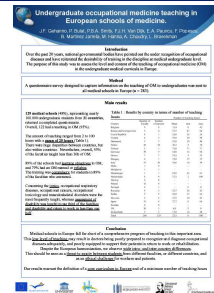
- Agree upon structure and content of the module
- A format
  - an advanced organizer,
  - learning objectives in terms of the student,
  - body of the chapter
  - summary with key words
- student assignment and multiple choice questions
- feedback on the MCQs

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## Results

- Questionnaire survey
  - 129 of 283 universities, 48% response
  - 122 did teach OM (95%)
  - Mean of 25 hours (range 2 tot 100h)
  - Topics
    - 79% Syllabus
    - 89% Mandatory



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## Results in some European countries

	contact hours	(min – max)
UK	6,0	(5-8)
France	10,3	(2-18)
Belgium	13,4	(0-45)
Spain	27,7	(0-64)
Italy	34,6	(10-70)
Germany	34,8	(12-56)
Serbia	36,8	(15-64)
Netherlands	37,1	(2-100)

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## Results

- Needs-analysis
  - Convenience sample in 6 European countries
  - Agreements and differences between countries and between groups of practitioners
    - Meaning of work
    - Occupational diseases
    - Fitness for work
    - Occup. history taking



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## Results

- The module consists of 4 chapters :
  - General introduction to work and health (including legal and ethical aspects, structure and role of OHS)
  - Effects of work on health (occupational diseases)
  - Fitness for work
  - Workplace health promotion.
- The module is delivered as :
  - a 5-day taught programme in a three-weeks period
  - a student workload of 84 hours (3 European credits)

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## Results

- [http:// www.emutom.eu/new](http://www.emutom.eu/new)
- The information and the material is directed both to those who teach to medical undergraduates and also to undergraduates themselves.
- Blended learning
- Teacher Manual

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**1** Introduction  
**2** Effects of work  
**3** Fitness for work  
**4** Health promotion

**Course materials**  
The undergraduate course module on occupational medicine consists of four chapters.

**Aims and Objectives**  
The objective of the EMUTOM Module is to have an agreed common approach to teaching Occupational Medicine across Europe. The

**Background**  
Most people spend a third of their adult lives at work and "occupation" is an important determinant of human health. Each year

**Module description**  
The course is offered at undergraduate level and introduces the basic benefits of work and health, and occupational medicine. A broad

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**How to use?**

This module was designed with the intention to be an interactive educational tool and a resource for both teachers and students. It is delivered to be used by teachers as a 5-day taught programme consisting of lectures, powerpoint slides and exercises with a student workload of 84 hours. Nevertheless, a student who wishes to study independently can use it as a self-guided course.

The course was written for undergraduate level students unfamiliar with work and health issues. Like any other university course it assumes a certain level of background education. In this case, some understanding of the basic sciences, physiology and anatomy will be assumed. You will need access to internet but no further special software or equipment are required.

Although it can be approached in discrete sections, we encourage students to go systematically through the whole module starting with the General introduction and continue with the consecutive chapters. We suggest that students allow a couple of hours to study the material available for each unit, with additional time required to do the suggested exercises and activities.

**Course**

- How to use?
- Syllabus
- Course materials
  - 1. Introduction
  - 2. Effects of work on health
  - 3. Fitness for work
  - 4. Workplace health promotion

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**Course materials**  
This course comprises four chapters. Click on the title to get an overview of each chapter and even download the learning materials.

**1** Introduction  
Introduction to the basic principles of occupational medicine.

**2** Effects of work on health  
Health effects caused by exposure to different hazards and unsafe working conditions.

**3** Fitness for work  
How to advice about fitness for work and to improve patient's health through work.

**4** Workplace health promotion  
Using the workplace as a channel for disease prevention and health promotion efforts.

**Course**

- How to use?
- Syllabus
- Course materials
  - 1. Introduction
  - 2. Effects of work on health
  - 3. Fitness for work
  - 4. Workplace health promotion

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**Chapter 1: Introduction**

The goal of this unit is to introduce you to the basic principles of occupational medicine, and to explain the importance, the structure and the role of this discipline.

**Contents of this chapter**

1. Definitions and general principles
2. European labour market and support
3. Extent of the problem
4. Key questions for the future

**Materials**

Description	Download
1. Text	
2. National Structure, law and role	
3. Self-assessment exercises	
4. Feedback on self-assessment	
5. Student assignment	
6. Documentation	
7. Powerpoint	
Additional Material for teachers	

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**Use and evaluation**

- Evaluation by on-line questionnaires :
  - ▶ Per partner country : experts and practitioners
  - ▶ Per partner country : 5 students from the third year
- In Belgium : pre (T0), betweenmodule (T1), post at exam (T3)
  - ▶ Knowledge MCQs and Self-efficacy questionnaire (Sefom)
  - ▶ All students from the third year ( n = 264)

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**Use and evaluation**

**I Feasibility**

**Level of difficulty**

1. Do you have enough prior knowledge to study this chapter?  
 Yes  
 No

2. Did you go over the whole chapter (text and other materials)?  
 Yes  
 No

**Time**

3. Is the time that you have spent on studying in relation with the knowledge that you gained?  
 Yes  
 No

4. How much time have you spent in total to study this chapter?  
hour: \_\_\_\_\_

5. How much time have you spent on the theoretical content (text part)?  
hour: \_\_\_\_\_

6. How much time have you spent on the material that was added (the case and/or exercises, multiple choice questions) to the theoretical content (text part)?  
hour: \_\_\_\_\_

**Student evaluation of the EMUTOM module**

7. Did the content in this chapter fit your study style?  
 Yes  
 No

8. Is the timing of the course (third year) appropriate and well placed within the curriculum?  
 Yes  
 No

Please, feel free to give additional comments:

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**Use and evaluation**

**Main conclusions of the on-line questionnaires**

- Overall, positive comments and feedback
- Need for more cases
- More MCQs
- Minor chapter related remarks
- New layout of the website
- Consistency of the chapters
- More visibility : logo

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**Use and evaluation**

**Sefom (Self-efficacy OM)**

- To attain a competence, not only is the development of conditional knowledge and skills needed, but also related beliefs about one's personal efficacy.
- Bandura (1997) defines self-efficacy as students' judgments of their capabilities to successfully perform specific tasks.
- Research is rather consistent as to the relationship between high self-efficacy levels and resulting learning performance.

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**Use and evaluation**

Indicate the degree of certainty that you have knowledge/mastery of one's subject matter on a scale from 0 to 100.

0    10    20    30    40    50    60    70    80    90    100  
 I cannot do this at all      There is a 50% chance that I can do this      I can do this for certain

	Degree of certainty (0 – 100)
1. Explain the five most important tasks of the occupational physician.	
2. Give three causes of occupational asthma.	
3. List the most frequent occupational diseases (at country level).	
4. Formulate advices to the patient/worker concerning the primary prevention of low back pain.	

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**Use and evaluation Sefom**

**Sefom**

Phase	Score (%)
pretest	~30
between test	~60
posttest	~75

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**Use and evaluation Sefom**

Reliability : crombach's alpha prior to the study :  $\alpha = 0,864$  (20 items) and  $\alpha = 0,842$  at the end of the study  
 10 items knowledge, 10 items skills

Co-variables :

- Exam score previous year 2011 : no effect on Sefom score
- Gender : girls have a lower Sefom score, but not statistically significant
- Participation : significant higher score after attending the lectures

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**Use and evaluation MCQ**

		Statistics		
		PretestMCQ	BetweenMCQ	PosttestMCQ
N	Valid	233	121	259
	Missing	28	140	2
Mean		43.2064	78.7057	63.8803
Median		46.6700	86.6700	66.6700
Std. Deviation		18.52064	19.46270	16.40032
Variance		343.014	378.797	268.970
Minimum		.00	23.33	.00
Maximum		86.67	100.00	95.00

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**Use and evaluation MCQ**

Descriptive Statistics

	Mean	Std. Deviation	N
PretestMCQ	41.4236	18.36333	115
BetweenMCQ	79.7397	18.57098	115
PosttestMCQ	68.5364	12.87000	115

Repeated measures : co-variates  
 Exam score previous year 2011 : significant higher score  
 Gender : girls significant higher score  
 Participation : significant higher score if attendance lectures

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**Discussion**

- Final version of the module available October 2012.
- Use of this module implemented/compulsory in the curriculum of the partner countries.
- Available for all interested parties, free of charge
- Promotion and dissemination activities
  - Final conference with report
  - ICOH Cancun March 2012
  - Submitting scientific articles
  - Bilateral agreements
  - ECTS

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**Discussion**

- Two-years project : what 's next? Sustainability
- Website : no inter-active cases, no discussion forum
- Coördinators meetings in Brussels
- Timing - deadlines
- Cultural and academic diversity

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**Thanks to you!**



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