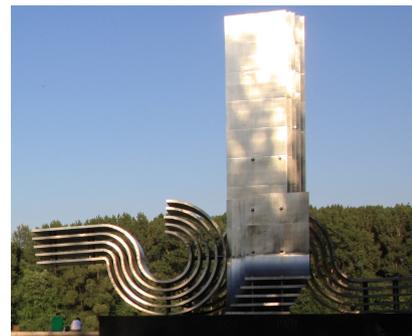




**ÖGH**  
Österreichische Gesellschaft  
für Hochschuldidaktik

**21<sup>st</sup> Graz Conference**  
**Szeged | 20 - 22 April 2017**  
Motivating Feedback  
for Satisfied Students and Teachers



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**Scientific Program:**

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# 1 Contents

	Page
Welcome	7
Programmübersicht/Program Overview	12
Workshops	15
Lectures	29
Posters	48
Participants	122
Notes	126





## 2 Welcome

	Page
Welcome by Bari Ference (Dean)	8
Welcome by Bodosi Mihály	9
Appreciation of Barabas Katalin	10
Contents	5



**Dear Colleagues and Friends, dear Students, dear Graz Conference Community,**

It is an honour and pleasure for us to welcome you to the 21<sup>st</sup> Graz Conference on **Motivating Feedback for Satisfied Teachers and Students**, on April 20<sup>th</sup>-22<sup>nd</sup> 2017, (Szeged, Hungary).

Graz Conference was founded by our Austrian friends, members of the Austrian Society for Higher Education (ÖGHD) in 1995 and from the very beginning, teachers and students from the Faculty of Medicine, University of Szeged participated with enthusiasm in this innovative project. The original aim of the founders was to change the Austrian medical curriculum by exchanging ideas and experiences with countries with different curriculum backgrounds.

We are really happy to be part of this challenging process and we can confirm that we have learned a lot from the best practices of neighbouring and Western European countries with modern curricula.

We have not only gained and shared valuable knowledge but also found real friends with similar interests in medical education and dedication to permanent curriculum discussion.

Since 1995 the founders and organizers of Graz Conference, Richard März, Jörg-Ingolf Stein, Karl Kremser, Matthäus Grasl and Herbert Plass have organized conferences in Graz, Innsbruck, Vienna, Salzburg, Timisoara. In 2017 we have the honour to hold the conference in Szeged, Hungary.

We are expecting a highly interactive conference with participation of famous international experts and speakers, with workshops, discussions, and debates, focused on motivating feedback for teachers and students, modern teaching and learning methods, evaluation and examination systems, Erasmus exchange program and accreditation.

Welcome to Hungary, to our beautiful city Szeged, the city of sunshine!

Sincerely

Prof. Dr. Ferenc Bari  
Conference Chair  
Graz Conference Scientific Committee member  
Dean of the Faculty of Medicine  
University of Szeged, Hungary

## Welcome Address by Prof. Mihály Bodosi

On behalf of the Hungarian Society of Medical Education and Health Science, I would like to welcome all participants as well as the organizers of the 21<sup>st</sup> Graz Conference on “Motivating feedback for satisfied teachers and students” in Szeged.

It is well known that Europe is the continent where the organized medical education, both graduate and postgraduate, started and has the longest tradition. The time-honoured customs encourage us to continue the educational work established by the most famous medical schools in the past. The new challenges, however, raise new expectations. Our Society tries to find answers for national and international educational problems. Let me take the opportunity to introduce our Society’s objectives: to promote and sustain the continuum of medical education from the graduate to postgraduate training and life-long medical education

- to participate in the spreading, discussion and the use of recent results of medical education
- to support the activity of Medical Faculties on the development of curriculum based on an identical concept
- to harmonize the undergraduate and postgraduate education, especially to prevent cross coverings and to work out the optimal proportion between the theoretical knowledge and the practical skills
- to report the actual educational issues for authorities through the Dean’s Colleges of Medical Faculties
- to take into consideration the international trends of medical education and adapt them to the Hungarian conditions
- to facilitate the exchange of educational information and to establish a permanent forum for further discussion
- to represent a consultative and an advisory role on the actual educational politics
- to help and facilitate the reform of learning and teaching technologies and to make them widely accessible
- to contribute actively to international conferences on medical education

as we do it now. Let me once again wish You a successful meeting!

Prof. Dr. Mihály Bodosi

President of the Hungarian Society of Medical Education and Health Science

## **Ladies and Gentlemen,**

I have the honour to tell you a few words about Katalin Barabas, our colleague and an outstanding teacher who will be presented the Graz Conference Award today.

She is a graduate of the Szeged Medical University and following completion of her studies she decided to remain at the university and progressed from Researcher to Associate Professor over time.

Her work greatly helps the Department of Public Health, where she established the “Preventive Health Educational Activity”. For her enthusiastic work she received the “Freddie Mercury Award”. She holds a PhD and is a Habilitation Teacher - to mention just a few of her credentials.



In 1998, the founding fathers of the Department of Behavioural Sciences asked Katalin to head the newly established department. Amongst her body of work it is worthy of mention that she developed the courses for communication training in medicine, health education and development, and thanatology and gerontology. All of them highly patient centered, practical and greatly helpful in the medical practice generally.

In Hungary she was the first to introduce training courses for medical students involving the use of actors. By having them recorded using real life situations, she greatly helped analyze and enhance communication between patients and future doctors.

She is also the secretary of the Hungarian Medical Training Association, and member of the Association for Medical Education in Europe (AMEE)

Beside graduate and postgraduate education of medical students, she has actively participated in teaching and the development of education programs for the Faculty’s of Dentistry, Pharmacy, and the College of Health Sciences from the very beginning of her career.

She is a founding member of the Doctoral School of Education, and also a Founder of the Applied (Social and) Health Psychology Faculty of Szeged.



Katalin never seems to run out of ideas on how to improve and help the training of Doctors to the great benefit of their future patients.

But in addition to all these truly great and inspirational achievements and credentials lies an individual who is warm hearted, humble, and always willing to give freely of her time, effort and knowledge - and for those of us who have come to know her as a friend and colleague, someone who is a pleasure to know and to work with and for whom there can surely be no better and worthy recipient of this award!

Dr. Ferenc Bari  
Dean of the Faculty of Medicine  
University of Szeged

Dr. Oguz Kelemen  
Head of the Department for Behavioral Sciences  
University of Szeged

### 3 Program Overview

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Thursday  
20 April 2017

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Topic: How to motivate

*Chair: Ferenc Bari, Faculty of Medicine, University of Szeged*

9:00	Registration	
10:30	Welcome	Szabó, Bari, Bodosi, Stein
11:00	Lecture	Marz
11:45	Lecture	van Beukelen
12:30	Lunch	

*Chair: Tibor Bartha, University of Veterinary Medicine, Budapest*

14:00	Workshops	
15:30	Coffee	
16:00	Lecture	Dimitriadis
16:45	Lecture	Borda
18:00	Posterparty	Stein (Moderation)

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Friday  
21 April 2017

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Topic: Feedback in skills training

*Chair: András Palkó, Faculty of Medicine, University of Szeged, Hungary*

9:00	Lecture	Szederjesi
9:45	Lecture	Szabó
10:30	Coffee	
11:00	Workshops	
12:30	Lunch	

*Chair: Oguz Kelemen, Faculty of Medicine, University of Szeged, Hungary*

14:00	Lecture	Zalika Klemenc-Ketiš
14:45	Lecture	Jan Breckwoldt
15:30	Coffee	
16:00	Workshops	
19:00	Gala Dinner	

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Saturday  
22 April 2017

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Topic: International Day

*Chair: Ferenc Hajnal, University of Szeged, Hungary*

9:00	Lecture	Frydenlund
9:45	Lecture	Dieter
10:30	Coffee	
11:00	Round Table	
12:30	Abschluß/Closing Remarks	Bari, Stein
13:00	End of Conference	

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Contents

page 5



## 4 Workshops

Workshop	Facilitator	Location	Page
Thursday 14:00			
1a	Duijn, Mándoki	A	16
1b	Hortobágyi	B	18
1c	Schuh	C	19
1d	Pulko <i>et. al.</i>	D	20
Friday 11:00			
2a	Richard-Crémieux, Rousseau	A	21
2b	Sáry, Piffkó	C	22
2c	Weiczner	B	23
Friday 16:00			
3a	Grasl	B	24
3b	Kremser, Plass	C	25
3c	Szederjesi	A	26

A... Körtvélyessy Hall, division I, 1<sup>st</sup> floor

B... Körtvélyessy Hall, division II, 1<sup>st</sup> floor

C... Zrínyi room, 2<sup>nd</sup> floor

D... Somogyi Room, 2<sup>nd</sup> floor

Contents: page 5

Workshop 1a, 20. 4. 2017, 14:00

**Meaningful feedback for improvement towards unsupervised practice**  
*Providing and seeking feedback while in clinical workplace is a crucial step for reaching the entrustment level to work independently*

Chantal C.M.A. Duijn<sup>1</sup> Mira Mándoki<sup>2</sup>

<sup>1</sup>Chair Quality Improvement in Veterinary Education, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands

<sup>2</sup>University of Veterinary Medicine, Budapest, Hungary

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**Background:** The concept of Entrustable Professional Activities (EPAs) is increasingly applied in medical education over the last ten years. EPAs have been implemented widely particularly in postgraduate medical education, a trend continuing to undergraduate medical and veterinary medical education. EPAs define the outcomes or core activities of a curriculum, i.e. what trainees or students have to acquire by the end of a specific training period. Thus, the clinical tasks that students or trainees need to perform provide suitable learning objectives till the end of their study.

Given the efforts in faculty development and the leap toward developing competencies for teachers, why don't we have any real defined standards or requirements for training teaching faculty in the form of entrustable professional activities (EPAs)? Teaching is always considered a major mission alongside patient care and research, but little if any requirements exist for faculty members and they are entrusted with learners without any clear assessment of teaching ability and feedback giving behavior. This workshop addresses the design of the EPAs and the different assessment tools and how to use them effectively for entrustment decisions.

Structure of workshop: A combination of lecture, discussion, and small group activity. Lecture and discussion topics include the role of learning objectives in deciding what to assess; samples of test blueprints and their key characteristics; a toolbox of assessment methods and a framework for determining an optimal method for different assessment purposes. Participants will be given time to work in small groups. These small groups allow participants to create EPAs and to discuss about it.

**Intended outcome:**

Participants will:

- A. Get a short introduction of the EPA concept
- B. Get insight in the different assessment tools and their usability for entrustment decisions
- C. Know how to use EPAs in their own curriculum
- D. Learn how to give meaningful feedback to the students/ learners while or after performing a specific EPA

**Who should attend:**

In general medical and veterinary medical educators, staff and teachers who are willing to learn strategies about teaching at clinical workplaces and use EPAs in order to assess competency development.

More specifically:

- Do you think there is room for improvement in your course or in the curriculum of your institution?
- Do your students have consistent opportunities to learn, practice and demonstrate key skills prior to their transition to doctor or veterinarian?

If you answer both questions with a 'YES', you are welcome to attend.

**Workshop level:**

Intermediate

Workshop 1b, 20. 4. 2017, 14:00

## **Teaching evaluation and student feedback at King's College London**

Tibor Hortobágyi<sup>1,2</sup>

<sup>1</sup>Faculty of Medicine, University of Debrecen, Hungary

<sup>2</sup>Institute of Psychiatry Psychology & Neuroscience, King's College London, United Kingdom

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King's College London (KCL) is the largest healthcare learning centre in Europe. It is 21<sup>st</sup> in QS Top Universities World Ranking and 16<sup>th</sup> in Medicine.

Teaching evaluation by the students is a key component of assessment which reflects on standard of teaching and standard of content of an educational activity. In the latest student survey at the Faculty of Life Sciences and Medicine (overall response rate: 73%) overall student satisfaction was at 79%, ranging between 62-100% in different departments.

Regarding 'Assessment and feedback' it has been asked from the students whether marking criteria has been clear in advance; assessment arrangements and marking has been fair; feedback was prompt; detailed comments received on work and whether it helped clarify things. The students also graded how the teaching met the needs for the examination and the clinical relevance; the coherence of a particular lecture, seminar or practical regarding the progression within the taught subject is evaluated; the administrative organization.

Regarding 'Teaching on my course' students were asked whether staff were: good at explaining things; have made the subject interesting; enthusiastic about what they were teaching; course was intellectually stimulating. The annual appraisal of teachers by their peers is another important form of evaluation. This also includes other aspects of academic practice, such as research student supervision, publication metrics, personal development, organization and management, international reputation. Students have tutors, whose responsibility is to monitor and help their progress and address poor performance related issues with regular meetings every 3 month or more often if needed and problematic cases are referred to senior tutors. KCL runs various courses for teachers on best practice ranging from annual lecture series and on-line education to postgraduate diploma, MSc and PhD. ,

Workshop 1c, 20. 4. 2017, 11:00

## **How to give feedback in workplace-based assessment?**

**Bianca Schuh**

Teaching Centre, Medical University of Vienna, Austria

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### **Introduction:**

Feedback is an important part of medical training. We are not very good in self-assessing our own performance (Eva & Regehr, 2005; Davis et al., 2006). Withholding feedback can lead to mixed messages and wrong assumptions by the student of his/her clinical skills (McKimm, 2009). Therefore, effective feedback on the student's performance is crucial for his/her learning progress. It is the aim of this workshop to train participants in giving and receiving helpful feedback based on direct observation of performance in the clinical environment.

### **Intended Outcomes:**

- Participants can explain the principles of workplace-based assessment, in particular of the Mini-Clinical Evaluation Exercise (Mini-CEX) and Direct Observation of Procedural Skills (DOPS).
- Participants can give and receive effective feedback in conducting Mini-CEX and DOPS.

### **Structure of the workshop:**

The workshop comprises inputs, video examples, and discussions. The participants will have the opportunity to practice feedback.

### **Who should attend?**

The workshop will be of interest for teachers and students, who are or will be involved in workplace-based assessment.

### **References:**

- Davis, D. A., Mazmanian, P. E., Fordis, M., Van Harrison, R. T. K. E., Thorpe, K. E., & Perrier, L. (2006). Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. *Jama*, 296(9), 1094-1102.
- Eva, K. W., & Regehr, G. (2005). Self-assessment in the health professions: a reformulation and research agenda. *Academic Medicine*, 80(10), S46-S54.
- McKimm, J. (2013). Giving effective feedback. *Clinical teaching made easy: a practical guide to teaching and learning in clinical settings*, 41.

Workshop 1d, 20. 4. 2017, 11:00

### **Propaideutikos board game as an additional learning tool in practical skills peer teaching at Faculty of Medicine University of Maribor**

Nejc Pulko<sup>1</sup>, Jure Hanželič<sup>1</sup>, Urška Koštomaj<sup>1</sup>, Luana Laura Luk<sup>1</sup>, Klara Masnik<sup>1,2</sup>, Matic Mihevc<sup>1,2</sup>, Tadej Petreski<sup>1</sup>, Pia Zabavnik Piano<sup>1</sup>, Tamara Serdinšek<sup>1,2,3</sup>, Sebastjan Bevc<sup>1,2,4</sup>

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Nejc Pulko, pulko.nejc@gmail.com

In the recent years, peer teaching has become an established method of learning practical skills at Faculty of Medicine University of Maribor. The aim of the workshop is to point out strengths and weaknesses of peer teaching of practical skills. The workshop will consist of three parts: the background, practical presentation by peer tutors and a short discussion. The workshop will last 120 min.

In the first part, a short overview of the practical skills peer teaching at our faculty will be presented. The role of peer teaching at different subjects (Internal medicine, Surgery, elective subject Selected topics and novelties in propaedeutics) will be presented followed by short description of project work done by peer tutors.

In the second part, participants will be divided in five groups. Each group will rotate through five different work stations (20 minutes on each station) that will represent different parts of peer teaching at our faculty (urinary catheterisation, venepuncture & intramuscular injection, ultrasound of abdomen, "Propaideutikos" & clinical simulation, cardiovascular clinical examination). Stations will be carried out by our peer tutors. The stations will focus on practical side as well as on the theoretical background of the practical skills.

The workshop will be rounded up by a short discussion. We will focus on the SWOT (strengths, weaknesses, opportunities, and threats) analysis of the practical skills peer teaching.

The participants will be invited to be active in performing the practical skills and making discussion.

Workshop 2a, 21. 4. 2017, 11:00

### **Student driven programs in peer teaching for basic clinical skills**

Isabelle Richard, Olivier Brière, Johana Gaulupeau, Audrey Rousseau, Nicolas Lerolle  
University of Angers, France

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#### **Background:**

Teaching clinical basic clinical skills can be quite a challenge, since it requires very small group, or one to one teaching in order to provide each student with the opportunity to perform the skill several times and progress along the learning curve. In most medical schools at least part of the basic clinical skills are taught in skill centers (or simulation centers), part of the skills being also taught in authentic contexts during clinical placements. Peer teaching appears as one of the possible methods to provide small group teaching at reasonable costs.

Peer teaching has been described in several contexts. It is thought to be valuable for both partners. For the “junior-student” peer teaching creates a friendly context and may allow more questions than formal teacher-student relations. For the “senior-student” peer teaching requires organizing knowledge and induces deep learning strategies. Students are often quite keen in getting involved in peer teaching but maintaining their interest and implication may require additional rewarding strategies. These may include hiring formally the students as tutors, crediting the peer teaching activities in the curriculum or providing other advantages (such as priority access to clinical internships, reference for residential positions etc. . . ). Quality assessment of peer teaching requires explicit assessment of the activities performed and/or supervision of the “senior-student” by formal teaching staff.

#### **Activities:**

The participants will be asked to share their experience of peer-teaching in any context, and to describe the methods used for basic clinical skill teaching in their own institution. They will then be asked to complete a questionnaire on the possible pros and cons of peer teaching in the context of basic clinical skills.

A literature review of peer teaching in this context will be proposed and the results discussed with the participants. The experience of the university of Angers will be presented.

Finally the participants will be asked to work in small groups and write recommendations or tips for the implementation of peer teaching of basic clinical skills.

Workshop 2b, 21. 4. 2017, 11:00

### **Extracurricular clinical work**

Gyula Sary<sup>1</sup>, Jozsef Piffko<sup>2</sup>

<sup>1</sup>Department of Physiology, Faculty of Medicine, University of Szeged, Hungary

<sup>2</sup>Department of Oral and Maxillofacial Surgery, University of Szeged, Hungary

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During the past decades the number of medical students increased disproportionately compared to the number of patients treated in the clinical departments. This puts a serious constrain on the student-patient interaction during the academic years. Medical students at the Faculty of Medicine at the University of Szeged have to participate in a 4 week long “Nursing summer practice” after finishing the first year. After that the clinical education is organized into clinical practices where small groups of students learn the bed-side aspects of the medical profession. Later on there are courses where students may participate on simulation practices to get trained in doctor-patient interaction, but this training focuses more on the professional aspects of the clinical work (taking medical history, how to handle conflicts, etc.) than on everyday aspects of nursing care.

The Faculty of medicine announced the course “Voluntary clinical work” first time in the academic year of 2015/2016. Students can visit the clinical department and participate in patient care and nursing in their free time. The purpose was to gain practice and insight into nursing, to learn the tasks and responsibilities of other participants in the clinical work. Students who take the course are required to spend 28 hours /semester (worth 2 credit points). The feedback from both the students and the clinical departments is positive. We give a brief overview of the recent opinions and experiences of this course.

Workshop 2c, 21. 4. 2017, 11:00

## **Challenges of Teaching and Learning Human Anatomy in the 21<sup>st</sup> Century**

Roland Weiczner,

Department of Forensic Medicine, Faculty of Medicine, University of Szeged, Szeged, Hungary

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"Learners need endless feedback more than they need endless teaching."  
(Grant Wiggins)

The medical students of the 21st century are the children of the digital world, hardly any of them have memories about the pre-internet era. They crave for action, they need involvement, they want to be motivated, and they are active in expressing opinions.

The main challenges in the professional life of the anatomists today are as follows: the hardships of keeping the medical students constantly motivated, fighting for a proper place for anatomy within the ever-changing and constantly reformed curricula, making the taught material as applied and as clinically oriented as possible, finding a way to improve the human resource of the departments and trying to figure out how to become successful educators and researchers at the same time (not even mentioning the work-life balance).

The central topic for this year is the motivating feedback, so within the given workshop time frame, we plan to discuss together the different components of this "reflex arc": (1) the importance of clear learning objectives, as guidelines for teaching and exams; (2) the right methods to make the students involved and interested; (3) to offer the possibilities for self-directed learning to make the contact teaching hours as useful as possible; (4) to assess the advancement of the students keeping the main outcome goals always in the forefront (i.e. the priority of skills over pure lexical knowledge); and (5) to establish the ways for receiving feedback from all the parties involved: students and teachers, as well.

Feedback arrives at least in two different ways: formally and informally. The formal ways consist of practical and theoretical assessments, midterm and end-of-term exams (aiming to measure the advancement of the students towards the faculty-designated goals); and course evaluation sheets (as paper-based or in online form). Nevertheless, one should not forget about the feedback coming from informal channels: the mainly anonymous opinions of the students about the teaching activity of the departments, efficacy of contact teaching hours, fairness of the exams, and the professionalism of the teaching faculty.

With the help of all kind of feedback, the main duty of the teaching faculty is to act as a mentor to facilitate the self-improvement of the students by directing them towards the required objectives via choosing the right teaching methods. We should not forget that motivating the students is not enough, we have to motivate ourselves (the teaching faculty), as well.

Workshop 3a, 21. 4. 2017, 16:00

### **Modified PEYTON's method in learning the basics in practical ORL-examination.**

Matthäus Grasl, Karl Kremser, Michael Hanisch

Department of Otorhinolaryngology, Medical University Vienna, Austria

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**Introduction:** Trainees have to reach a certain level of skills competence before they are supposed to use these skills on patients. PEYTON 's four step method is a known approach designed for a 1:1 teacher: student ratio. This is associated with a high demand of instructing teacher. We present a modified approach for teaching groups of up to 25 students by one teacher.

**Method:** Modification of Peyton's four steps was: 1. only one teacher, 2. intensive use of peer-assisted teaching 3. intensive theoretical knowledge before 4. ongoing assessment 5. emphasis on communication with patients.

**Results:** All students could be transferred to patients contact without hesitation – after repetition and final assessment in a small group of 6 to 7 students. Discussion: This modified Peyton's approach has shown to be practicable, well accepted by the students, however is carried out with an enormous effort on the single teacher.

**Work order:** Two or three groups are defined and each of them gets the instruction to look first in their own curriculum where PEYTON 's method (modification) could be used and how it works. Presentation of the compiled approaches: each group in the forum. Feedback and discussion.

Workshop 3b, 21. 4. 2017, 16:00

## Using feedback tools for motivation

Karl Kremser<sup>1</sup>, Herbert Plass<sup>2</sup>

<sup>1</sup>Teaching Center, Medical University Vienna, Vienna, Austria

<sup>2</sup>Austrian Society for Higher Didactics (ÖGHD)

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Feedback can happen directly in small groups. For lectures with more than 50 students, technology can make it possible to perform the task, but one should never start without knowledge about the technology. Integration of technology into a classroom is a multistep process. You have to plan ahead and to some extent, you have to become an educational designer: Technology evolves and so must the teachers.

We will shortly discuss free on-line tools (e.g. Socrative, Mqlicker, Pingo) for performing in-class assessment and feed-back and will mostly focus on and work with a commercially available system (Interactive presenter™), a system, that has been rolled out entirely in the University of Veterinary Medicine in Vienna for all students and is used at the Medical University of Vienna.

All systems mentioned can enhance the performance and student participation for Sandwich-Lessons, TBL, assessment and feedback.

Workshop 3c, 21. 4. 2017, 16:00

### **Can psychologists improve our feed-back forms?**

János Szederjesi<sup>1</sup>, Cosmin Moldovan<sup>2</sup>, Luminita Albert<sup>2</sup>, Leonard Azamfirei<sup>3</sup>

<sup>1</sup> Simulation Center, Department of Anesthesiology and Intensive Care

<sup>2</sup> Simulation Center, Department of Applied Medical Simulation

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Healthcare training has increasingly adopted simulation as a teaching method over the last two decades. One compulsory part of educational programs is to continuously analyse the educational process. However, quality control in health educational program isn't an easy task, therefore multiple techniques were developed for this purpose over the time.

One widely accepted method is gathering feed-back from our students and participants. However, even if at first sight it seems to be an easy task, our experience revealed that it is challenging to find the right questions to be analysed in a constructive way. Most of our feed-back forms had a mostly 'too positive' answers, therefore we couldn't use them to improve our educational skill.

To find the best tools to assess students' satisfaction and personal development, we tried to find professional personnel to be included in our research team. Therefore, we sought the expertise of psychologists in this process.

We developed new satisfaction feed-back form for students, from the University of Medicine and Pharmacy, Tirgu Mures, who attended the practical course in the Simulation Centre of our University. The simulation sessions included standardized patient program, basic skill teaching, high fidelity simulators and human patient simulation.

All students completed a 20-item questionnaire voluntarily and anonymously. The questionnaire was divided into several main categories of psychological assessment: individual self-efficacy of students in the medical context, practical utility of medical simulation in their professional development, improvement of communication techniques, student satisfaction regarding simulation-based training techniques and the effects of medical simulation on the development of medical management skills.

The study included 149 respondents, general medicine students from third to sixth year of study. The results were surprisingly useful and have pointed out several directions that we should improve in the future.





## 5 Lectures, Round Table

All events will take place in Körtvélyessy Hall, ground floor

	Day	Time	Page
Marz	Thursday	11:00	30
van Beukelen	Thursday	11:45	31
Dimitriadis	Thursday	16:00	34
Borda	Thursday	16:45	35
Szederjesi	Friday	9:00	37
Szabó	Friday	9:45	38
Klemenc-Ketiš	Friday	14:00	40
Breckwoldt	Friday	14:45	41
Frydenlund	Saturday	9:00	42
Dieter	Saturday	9:45	43
Round Table	Saturday	10:30	44

Contents: page 5

Lecture, 20. 4. 2017, 11:00

## **Clear and attainable learning outcomes are a prerequisite for teacher and student satisfaction**

Richard Marz

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Successful medical students must attain more than just knowledge; they must become competent. Obviously, for the vast field of medicine this can only be achieved for a small sliver of the universe. Careful guidance and frequent feedback is necessary for students to navigate this infinite space and to provide a foundation for later, much more detailed, learning. Thus, the faculty must carefully select learning outcomes that are relevant and structure them to become attainable. The sum of all learning outcomes are the institutional goals. Students must be repeatedly challenged to explore their limits but in a responsible manner which ensures that they do not waste their time learning unnecessary details and procedures.

Students are members of a diverse population, just as physicians are, and this is the way it should be. Thus student satisfaction will depend on a variety of factors and never be unanimous. Responsible teachers should be more concerned with final learning outcomes than with immediate acclamation though in real life the latter will be hard to ignore. In general students will demand an efficient path to success, and success is measured as performance on the examinations. Students will also demand at all times a transparent connection between institutional goals and their personal goals.

Learning strategies that result in effective and sustainable learning must be encouraged by the faculty. Learning outcomes must be at the same time realistic and yet ambitious - a narrow path to be sure. Feedback must occur as frequently as possible. To be effective it must be cognizant of institutional as well as personal goals.

If this approach results in the mastery of meaningful learning outcomes, both student and faculty satisfaction is assured.

Lecture, 20. 4. 2017, 11:45

## How to motivate teachers and students for lifelong learning?

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Schopenhauer stated already in the 19<sup>th</sup> century: “For the happiness of man it is necessary that he is doing something, undertake activities, or merely learn something”. And for happy and lifelong learning motivation is crucial. There are several theoretical concepts on motivation. For instance there is the distinction between extrinsic and intrinsic motivation, in the Self Determination Theory of Deci and Ryan[1] and the distinction between the performance and mastery goal approach, in the Goal Theory of Pintrich[2]. Extrinsic motivation and performance approach both are fostered by external stimuli, while intrinsic motivation and mastery approach can be seen more as personal traits. The learning and working environment can foster both motivation aspects, but also can have a negative effect on motivation.

Four important aspects can foster the motivation in higher education:

- It has to be totally clear that the content of the curriculum (and of the content of courses in professional life) is **relevant** for the whole study and the later profession.
- The curriculum (and postgraduate education) has to be in a didactic format that optimally stimulates **active learning** (of student or teacher).
- In line with the former point the curriculum has to an **individual** approach of the learner, with a focus on **personal development**. Individualisation will lead to a high level of **responsibility** for the learner for its own learning process.
- All former point will only result in the fostering of motivation when **feedback** is structurally integrated in the curriculum.

These four topics are described by Ronald Harden[3] as the acronym FAIR: Feedback / Active / Individualisation / Relevance.

What are prerequisites to operationalize these topics in an educational programme? To make the educational programme relevant it is necessary to describe the competencies for future professional life, and thus to be the base for a relevant programme. As an example the VetPro competency profile of Utrecht vet school, developed by qualitative and quantitative research, contains seven competency domains (scholarship, communication, collaboration, entrepreneurship, health and welfare, veterinary expertise and personal development) with 18 competencies under these domains (Bok et al.[4]). Detailed from this competency profile the more detailed program outcomes and learning objectives for the separate courses can be developed. To use and address permanently the (relevant) goals of each course and of the curriculum motivates students for learning. →

To implement active learning and individualisation an evidence based didactic concept of the curriculum focused on active learning is recommended, like the problem-based or team-based learning concept. Active learning can be fostered not only in the theoretical courses, but most of all in the (clinical) workplace. The more active the learner has to be and the more responsibility the learner gets, the more possibilities there are to give and receive relevant and actual feedback. Feedback is a real prerequisite to develop a reflective mind and to learn. In order to achieve these prerequisites for intrinsic motivation it is wise to describe within your organisation an evidence-based education philosophy, which give the direction of concept and content of your programme.

The absence of these four aspects will influence the level of the (intrinsic) motivation in a negative way.

Continuous attention for the competencies Communication, Collaboration and Personal development in the daily life of the learning process is necessary, not only for students, but for teachers as well. In most curricula attention for these competencies is relatively new, so most teachers are not trained in these competencies. Examples of how to do this will be given, for instance the introduction of a tutor for each student throughout the curriculum, and introduction of a peer feedback system. A safe learning environment is a condition for the successful implementation of the described topics, especially for the opportunities to get and receive frequent and rich feedback. It is interesting to investigate the culture of the organisation and the willingness of an educational or professional organisation to learn and to change.

Medicine and veterinary medicine are professions in which the high quality of care and the evidence-based approach is central. The operationalization of the competency Scholarship fosters the attitude of evidence-based learning and working. Peer feedback groups cannot only focus on peer feedback about topics like communication and entrepreneurship, but also on a critical reflection on the evidence-based approach. When this attitude of helping each other in peer feedback groups in a critical way starts already in the educational programme, it is likely that graduates continue this during professional life (depending on the safety of the future work environment). To structure these discussions the theory of critical reflective work behaviour can be used. (de Groot et al.[5])

To stay engaged in a stressful (first) position in the professional field, the safe learning and working environment is crucial. Investigating this topic using the job-demands-job-resources model revealed that topics like support from colleagues and from the supervisor, possibilities for lifelong learning, feedback and autonomy are important issues, while in the domain of the personal resources (the personal development) reflective and proactive behaviour, optimism and self-efficacy do contribute to the work engagement of the professional (Mastenbroek et a.[6]). By addressing and fostering these topics in the educational programme, more resilient graduates will enter the professional field. These attributes will contribute to the continuous motivation in professional life. →

Finally, one cannot expect from teachers that they are able to contribute adequately to the above-discussed traits, tasks and competencies. Additional faculty development programmes are a prerequisite to develop these competencies in teachers. To motivate teachers for faculty development programmes incentives, stimulating extrinsic motivation, are necessary.

But a final conclusion may be that learning, to stay curious, to stay in the attitude of striving for quality are things that make persons happy. Motivation stimulates learning, but feeling the joy of learning also stimulates motivation.

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Lecture, 20. 4. 2017, 16:00

## **Motivating effects of mentoring and student-driven educational projects**

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Mentoring has a major contribution on successful careers in medicine. There is evidence of a positive influence on clinical and academic performance, on participation in research during medical school and even on learning professionalism[1-3]. Most research concentrates on formal one-to-one mentoring programs.

At the medical faculty of the LMU we implemented a two-tiered program with a peer-mentoring and an one-to-one mentoring part (for clinical students). The mission of our program is: 1) to strengthen the horizontal and vertical network of the faculty and thus provide an efficient support structure 2) to empower medical students and strengthen students' participation in faculty life and 3) to foster the scholarly approach to mentoring activities[4]. Based on almost a decade of experience with one of the largest medical mentoring programs at German faculties, this lecture will present different mentoring forms and discuss the influence of structured mentoring programs on personal and faculty development, through motivation and participation of medical students.

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Lecture, 20. 4. 2017, 16:45

## **Challenges in implementing new assessment methods of students' learning in the University of Medicine and Pharmacy of Tîrgu Mureş, Romania**

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Curriculum development is a priority of the strategic plan 2016-2020 of the University of Medicine and Pharmacy of Tîrgu Mureş (UMFTGM) with the main objective to align medical education to European standards. The curriculum reform process started three years ago and the most important steps were: 1. Establishment of a new administrative structure, responsible for the curriculum reform, coordinated by the Vice-rector for teaching affairs (CEIPSCU); 2. Involvement of international experts in Medical Education; 3. Training of local experts in Medical Education; and 4. Engagement of important political decisions, which were included in a new regulation and were approved by the Senate.

The assessment of students' learning is an important part of this process and in my presentation I would like to highlight *why* and *how* UMFTGM implemented changes in the assessment of students' learning. The main goals for these changes were to make the learning process continuous (introduction of formative examinations), to make a uniform assessment for all the students, regardless of the series or the language of study they attend (Romanian, Hungarian, English), to prepare better questions, peer reviewed by other members of the department and from outside the department, to make the marking method transparent, to avoid cheating.

A first measure involved the whole academic community: the introduction of multiple-choice questions (MCQ) testing which became mandatory for the theoretical examination in all subjects. It was a hard political decision and it did not bring peace in the academic community which became divided into two: for and against. The main invoked reasons were that: by MCQ teachers cannot test the medical thinking of the students or their ability to make connections, teachers no longer have the possibility to face the student, students cannot acquire a medical or scientific language, teachers do not know how to prepare suitable MCQ, and so on. One year later, a survey regarding the satisfaction of the students on assessment methods, which also included MCQ testing, was performed and the SWOT analysis showed very few strengths and a lot of weaknesses and threats.

The other measures were implemented only in pilot subjects and involved practical and theoretical examination as well. In non-clinical activities a prelab report became mandatory in order to be admitted to the practical activity. These practical activities are marked weekly, on a regular basis, to provide meaningful feedback to the students

about their performance. In clinical departments as well, a continuous evaluation during the semester (case presentation or activities in the simulation center) is mandatory to be admitted to the final examination. The evaluation of all practical activities, in different percentages, is part of the final grade.

For theoretical evaluation, two TBL sessions per semester, as formative examination, were introduced. For summative examination, MCQ testing is standardized for all the students regardless of the series they attend. To improve the quality of the questions, a peer-review system by other members of the same department but also by members of other departments was implemented. In the same time, training for writing better MCQ was provided to all the teachers.

The CEIPSCU office is responsible for collecting the results from all the pilot subjects. A complex analysis is performed after each examination session. The results of this analysis, along with recommendations for improvement, are provided for each of these subjects.

Thus, examinations are used to provide guidance to the students on their performance, to give the faculty a feedback on how well the curriculum is functioning, but also to give feedback to the teachers about how quality assurance principles are respected by the examination system.

In conclusion, being aware that assessment shapes what students learn, we have to be certain that we are doing it right and using it well.

Lecture, 21. 4. 2017, 09:00

### **Emerging a multidisciplinary simulation center**

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The Center for Simulation and Practical Skills of the University of Medicine and Pharmacy of Tîrgu Mureș was inaugurated in October 2013. The idea of having a skill (simulation) center was born many years before, but the complexity of the practical applicability was a real challenge.

The preparation for the new simulation center started in 2011, and first steps were achieved by visiting and studying other skill centers around Europe to identify the opportunities and threats what those centers had to manage during their time being.

That is how was born the idea to develop a multidisciplinary center were several departments may come up with their curricula and their students to apply practical sessions.

The idea of establishing such a Center arose from the need to ensure that students (but not only them) have access to various medical and surgical maneuvers and techniques that would be harder to come across in a clinical setting or are more technically challenging, and to simulation scenarios focused on clinical cases.

All simulation activities are coordinated by the teaching staff of the respective discipline and are integrated within the curriculum of each discipline that participates in simulations.

Thus, 10 departments were involved in simulations, involving more and more students and teachers each year (roughly 3500-4000 students/year) with over 450 simulation sessions yearly.

Nowadays the center is organized in several simulation department: basic skills, human patient simulation, standardized patients and virtual simulation.

Lecture, 21. 4. 2017, 09:45

## **Hands-on (micro)surgical skills training: Great expectations and learning outcomes**

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The Institute of Surgical Research of the University of Szeged was founded in 1951 to teach basic surgical techniques to undergraduate students in organized ways. The program included 6 practical sessions with asepsis and knot tying, sutures, ligation and cannulation of vessels and assisting at operations using anesthetized animals. Based on this tradition, more focussed, structured and specialized courses: Basic Surgical Skills, Advanced Surgical Skills and Microsurgery were developed in the 1990's and introduced into the curriculum of undergraduate students both in the Hungarian and English program of the Faculty of Medicine and the Faculty of Dentistry.

The popular, elective program was run for highly interested, motivated students, but recently, the courses became all compulsory. It was a challenging task to develop a teaching system that would be attractive enough for those students also who otherwise would not been enrolled on a voluntary basis. During the preparatory period, we were particularly interested in the feedback of former students who completed successfully the previous elective Basic Surgical Skills courses. Based partly on their suggestions (1) we made on-line accessible the recorded demonstration videos and detailed, step-by step description of the assessment criteria for a successful completion of a practical exam task; (2) the basic tasks were presented by the teachers and then were repeated 3 times during the practices by the students (3) small-group workshops were introduced to discuss any problematic issues, and (4) practical exams were organized with OSCEs with objective assessment and examination protocols; (5) in case of dentistry students the topics were expanded with dentistry-specific specialties (e.g. mucosal sutures)

Quantitative scores and qualitative written feedbacks were collected during the last semesters and the data clearly demonstrate that high level of curiosity and motivation can be aroused, and the satisfaction rates about the course of the compulsory courses did not significantly differ from those for the elective courses (even in case of the 3-5% of the students would not have chosen 'surgical skills' courses if it had not been made compulsory). Besides, the comparative practical exam marks of elective and compulsory courses were statistically not significantly different either. Interestingly, 85% of the 2-year Hungarian students and 95% of the English-program participants expressed their readiness to follow a carrier pathway leading to a manual ("surgical") profession and this interest was mainly based on their experiences obtained during the course and the practical exam. →

Remarkably, all of the participants (100%) of Microsurgery course of the Faculty of Dentistry in the Hungarian program and 94% in the English program declared that they would have been enrolled in microsurgery courses independently from its compulsory nature. The satisfaction rates were also high, and 12-22% (in Hungarian and English classes, respectively) would use microsurgical techniques in the oral cavity in future clinical dentistry practice.

We concluded that regular and meaningful feedbacks together with a supportive, objective and reassuring assessment scheme will provide high rates of student's satisfaction and a comprehensive view on the practical values of hands-on (micro)surgical skills training.

Lecture, 21. 4. 2017, 14:00

## Using popular movies to motivate students in medical education

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**Introduction:** The learner's motivation is very important part of a learning process and it influences the students' performance [1, 2].

**Methods** that may motivate medical students for learning are student-centred education, horizontal and vertical integration within the curriculum, problem-based learning, learning in small groups, and the introduction of electives or other advances [2]. Also new teaching approaches can motivate students for learning, such as the use of virtual patients and art [3-5]. Popular movies or movie clips are being used more and more in the teaching of medicine and are being gradually accepted as a new method of teaching. They are particularly useful in teaching about family dynamics, ethical issues, professionalism and communication [3].

The **aim** of the presentation is to give an example of the use of movie clips in the teaching at medical faculty in order to motivate students. Method The presentation will consist of the introduction where some theoretical background on motivating students for learning and using movies in medicine teaching will be given. Further on, one or more movie clips will be presented in order to demonstrate their use in teaching.

**Results:** After the presentation, the participants will know the theoretical background of using popular movies in teaching medicine. They will also be able to use appropriate movie clips in teaching medicine.

**Discussion:** Although lectures are inappropriate teaching methods when it comes to motivate students for learning they are often still used in curricula of medical faculties. Including movie clips to lectures can enrich them and also increase the motivation of students for learning. Elective subject can be structured in a way to include movies or movie clips and hence enhance motivation for learning.

**Conclusion:** Movies or movie clips are a good method to increase the motivation of medical students for learning.

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Lecture, 21. 4. 2017, 14:45

## **Entrustable professional activities – a link between pre- and postgraduate education**

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“Entrustable Professional Activities, (EPA’s)” are characterized as pieces of work in a given typical clinical context, which may be entrusted to a trainee for independent execution at a certain point of training.

An example could be the “management of general anesthesia for low-risk surgery in a patient without relevant co-morbidity” as a first-year EPA in anesthesia training.

EPA’s may be described as an evolution of competency-based medical education applying the concept of competencies to specific workplace contexts. By this, the expected level of supervision at a certain stage of training gets more practical meaning, taking a more holistic view of a trainee. Experience with this new concept is limited until now, therefore it remains to be determined whether present expectations will be fulfilled.

In this contribution, the concept of EPA’s will be related to models of expertise and of patient safety.

Lecture, 22. 4. 2017, 9:00

## **How can we secure international experience for medical students? - Erasmus and beyond**

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Internationalization is not only a buzzword on everyone's lips it is also a necessity for all our students seeking a career in nearly all professions. How do we provide international opportunities that will enable our students to gain this important knowledge of cultural sensitivity and insight needed for a future in health professions?

Is it enough to send a limited number of students abroad for a semester? Internationalisation of the curricula is becoming increasingly important in a rapidly changing world. On European level Erasmus+ has for long been instrumental in supporting this process. How well are we doing with student exchanges for students enrolled in health sciences and medicine? Can Erasmus+ support the international experience we wish to provide our students? With close contact with patients and diploma lead educations this is a challenge to many institutions.

This lecture will present the structure of Erasmus+ with both its limitations and possibilities for medical degrees. It will bring up to discussion the differences in Erasmus practice and Erasmus theory and how these two options can be used for health science and medical students. In addition the lecture will discuss how we can reach internationalisation of our curriculum for students studying health sciences and medical degree and alternative measurement and activities will be presented. Thus International student mobility is very important, it reaches only a few. Therefore we need to visualize and increase other international activities that can be rewarded equally to mobility.

Lund University in Sweden has developed a concept of a measurable international merits certificate. Throughout the study period students receive recognition for the participation in a wide range of activities, including student exchange, mentoring, international symposiums, conference etc. The concept was initially developed at the Faculty of Medicine at Lund University, Sweden in order to find ways of achieving the strategic goals of internationalization with limited opportunities to exchange students. It has now been implemented in several other institutions in Scandinavia. The concept of a certificate of international merits as a complement to Erasmus exchanges will be shared during the lecture including the process and thoughts behind the work.

Lecture, 22. 4. 2017, 9:45

## **Do we need a common quality assurance in times of global cross-border health care**

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The policy and health care calls for a free and unlimited professional practice for medical doctors to guarantee a comprehensive health care of the population worldwide. This is to support but presupposes that doctors receive worldwide an education and training with similar high quality. If the latter is not the case, there may be a risk to the health of the public.

The WFME Standards in Basic Medical Education are freely available and accepted worldwide. However, these standards are used not provably and very rarely in the quality assurance (accreditation) of medical education, medical schools and associated teaching institutions. In addition, worldwide and in WHO Europe a mandatory accreditation exists only in about half of the countries, whereas in about 25% of the countries accreditation is only voluntary and in 25% of the countries an accreditation does not exist. USA has decided that from 2023 only doctors from other countries are allowed to practice in USA when they have completed their training at a medical school that have been positively accredited by a WFME recognized agency.

In WHO Europe and the European Union (EU) the general, non-medical specific European Quality Standards for Higher Education (ESG) are used for accreditation in general. Accreditation agencies which use the ESG as the basis of accreditation are recognized by ENQA (European Association for Quality Assurance in Higher Education) and EQAR (European Quality Assurance Register for Higher Education). Medicine-specific quality standards do not exist in WHO Europe. In the EU, some medicine-specific standards are included in the Directive 2013/55/EU of the European Parliament: “Basic medical training shall comprise a total of at least five years of study, which may in addition be expressed with the equivalent ECTS credits, and shall consist of at least 5 500 hours of theoretical and practical training provided by, or under the supervision of, a university.” Furthermore, the Directive dictates an “automatic recognition of medical licenses and a free cross-border professional exercise”.

AMSE demands for WHO Europe (and worldwide) a mandatory uniform quality assurance using common quality standards. The AMSE quality assurance initiative plans

1. to map the ESG with the WFME standards to develop a common medicine-specific standard
2. that ENQA and WMFE recognize this standard
3. to adopt this standard in the European Parliament in order to
4. to secure the quality of education/training of future medical doctors in the EU, WHO Europe and worldwide and thereby
5. to enhance protection of the public in future.

Round Table, 22. 4. 2017, 11:00

**Round Table: International aspects of Erasmus exchange program and MD accreditation**

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University of Veterinary Medicine Budapest (UVMB) is relatively small university with 1200 students. There are three courses, a full 11 semester Hungarian and English course with 500 and 500 students, respectively. UVMB has a 4 semester German course with 200 students. Due to the full occupancy of the facilities the University had to limit the number of incoming Erasmus students in 30 for each Semester. Finally UVMB has more foreign students than Hungarian ones. Likely this is the most international veterinary campus in Europe. The advantages of having foreign students at the campus are rather obvious for the school. UVMB has to pass the European accreditation every 7-10 years. The strict accreditation process was successful three times over more than 20 years. Veterinary diploma of accredited schools is accepted all over in Europe. Accreditation is done by the European Association of Establishments of Veterinary Education (EAEVE). The presence of International Students helped a lot in passing the EAEVE Accreditation.

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**Aspects of Erasmus exchange program in the University of Medicine and Pharmacy of Tirgu Mures**

The Erasmus program was implemented in the University of Medicine and Pharmacy of Tirgu Mures (UMFTGM) in 2007. In ten years we managed to become the best-funded medical university of Romania and to be the second university, from all the Romanian universities, in terms of absorption of European funds. This led to a significant increase of all mobilities, especially the student's mobilities for placements.

For students, Erasmus program is an extraordinary opportunity to experiment new methods of teaching and learning, to gain new competencies (skills) and self-confidence, to be in contact with a new culture (in the broadest sense), to increase their adaptability and their chances for employability. The same principles apply for incoming students. On the other hand, teachers mobilities, both outgoing and incoming, have a very posi-

tive impact not only on improvement of teaching, but also in developing a networking of cooperation in research. Erasmus mobilities allow staff to gain professional international experience and this represent an added value for the institution.

As an overall view, at institutional level, Erasmus program opens new perspectives on the internationalisation policy of the university in terms of internationalised learning that vary from the internationalisation of the content and delivery of programmes, international cooperation and networking in research.

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The Erasmus exchange program is very important for students to learn about the cultural differences of countries, different ways of teaching and learning of medicine including teaching and assessment formats, different ways how medical students are selected and differences of the hidden curriculum. This enables students to see their own education and training under an international aspect.

The accreditation of medical schools and affiliated teaching institutions is necessary to guarantee a high quality for the education and training for future medical doctors. AMSE would like to implement within Europe a common and uniform quality assurance for medical education and training to ensure a high quality of future medical doctors and to allow a borderless practice of physicians.

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Erasmus exchange program is a great opportunity for students to gain a broad academic knowledge and acquire intercultural skills. It also enables the teachers to learn different way of teaching processes and know different curriculums in the field of Medicine and Health sciences.

However, synchronisation of different curricula is always challenging. Quality control of teaching processes is also important, as Erasmus mobility may determine the future career of students. Thus, optimization of mobility processes, improvement of bilateral relations and the harmonization of the different curricula are important aims to achieve in the future.

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### **International (EU and EEA) aspects of MD accreditation - *in the light of exchange programmes and transborder movements***

According to Dir. 2005/36/EC on the recognition of professional qualifications (PQD), the principle of automatic recognition that „1. Each Member State (MS) shall recognise evidence of formal qualifications as doctor giving access to the professional activities of doctor with basic training and specialised doctor, together with nurse (midwife) responsible for general care, dental practitioner, veterinary surgeon, pharmacist and architect. According to Article 24 of PQD the „Basic medical training . . . shall comprise a total of at least six (five ys. upon proposal of EC DG Internal Market, reflecting recent educational reforms and relevant for universities in Scotland) of study or 5 500 hours of . . . training provided by, or under the supervision of, a university. Although the PQD has not made the change in medical education from six to five ys, the EC officials accept that as definitive, the professional circles can take this as message of flexibility. So, the EC gives autonomy to the MSs in basic medical training, provided that, they accept and use the European Credit Transfer and Accumulation System (ECTS) credits.

Moreover, recent intent of the EU to modernise the PQD, in order to facilitate mobility of, among others, health professionals through the use of new European Professional Card (EPC) offers to correct, e.g. in order to targeting patient safety, so far unsettled questions of mutual recognition We have to welcome that, the EC propose to check migrant health professionals' language knowledge and promote EU-wide proactive alert mechanism to spread information about professionals who have been banned from practice. Furthermore, this process can solve the problem of the unequal national recognition of general practice/family medicine (GP/FM) as equivalent medical specialty in the MSs. In this respect the European medical organisations (EMOs) have called attention to the „... safeguarding of the highest quality of medical training and medical care for patients . . . which may not be compromised by economic pressures and that medical training must be regulated . . . in full respect of national competences”. They have stated, too that the differentiation between ‘medical specialist training’ and ‘specific training in general medical practice’ is not an appropriate . . .”. So, EMOs support to abolish the distinction made in PQD between ‘specialist medical training’ and ‘specific training in general medical practice’.

Finally, the latter example points out that in recent development of PQD revision is suggested for (academic) experts, as well, to propose more accurate mechanisms destined for checking the quality of training, processing applications to ensure better quality of services, definition of professionals' transient mobility and transparency issues of professional qualification in the European health care.

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Erasmus exchange programmes are celebrating more than 30 years of their existence. The dilemmas medical educators and students are faced with when considering to spend a semester or year abroad have however stayed similar. Especially in the field of medical education:

- How do you ensure sound clinical education in the face of language barriers for students coming to universities on an exchange period? How should we stimulate mentors at our clinical wards to achieve the best outcomes for exchange students as well as take into account their time consuming effort of mentorship?
- What should be done in acknowledging different study field of outgoing students?
- What ensures equivalency of professions in the European Union? Slovenia certifies that medical graduates are equal to their peers from the EU after completing a 6 month internship, other countries allow students to go abroad after graduation. What is the right way forward?

## 6 Posters

Posterparty: Thursday, 20. 4. 2017, 18:00

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|-----------|--|-------|
| Poster 1  | <b>Baik-Schneditz</b> <i>et. al.:</i> Practice of umbilical venous catheterization using a resource-efficient ‘blended’ training model   | p. 51 |
| Poster 2  | <b>De Meneghi</b> <i>et. al.:</i> An integrated approach for education/training in Veterinary Public Health (VPH) by the Department of Veterinary Science, University of Turin (DVS_UNITO): the experiences of the “VPH mobile clinic” and the “VPH practical weeks” | p. 53 |
| Poster 3  | <b>Duijn</b> <i>et. al.:</i> Workplace-based assessment tools for feedback and entrustment decisions in medical education: a systematic review   | p. 57 |
| Poster 4  | <b>Friehs, Friehs</b> Students’ Feedback as Quality Management Tool for Effective Teaching - Do Academic Teachers Take Advantage of It?  | p. 61 |
| Poster 5  | <b>Gajdács</b> <i>et. al.:</i> Changes in the knowledge level related to infectious diseases and antibiotic use among medical students during the basic and clinical modules of their education  | p. 65 |
| Poster 6  | <b>Grübler</b> <i>et. al.:</i> Evaluation of quality of telephone-cardiopulmonary resuscitation under contemporary Emergency medical dispatcher training in Graz – a pilot study   | p. ii |
| Poster 7  | <b>Himmelbauer</b> <i>et. al.:</i> Simulated Patients Program at Medical University of Vienna: Assessment of roleplay and feedback in psychiatry   | p. 69 |
| Poster 8  | <b>Levente Kiss:</b> Experiences after the establishment of a blended learning teacher education program for new staff members at medical universities in Hungary  | p. 71 |
| Poster 9  | <b>Klara Masnik</b> <i>et. al.:</i> The students’ view of video-assisted learning as an addition to peer teaching of clinical examinations   | p. 73 |
| Poster 10 | <b>Müllner</b> <i>et. al.:</i> Smartphone based decision support systems in acid-base disturbances and diagnostic performance of medical students  | p. iv |
| Poster 11 | <b>Panaiteescu</b> <i>et. al.:</i> Urinary System: An Integrated Teaching Approach   | p. 77 |
| Poster 12 | <b>Pavelka</b> <i>et. al.:</i> Using an audience response system with a communication backchannel to engage students in a large-scale dermatology class  | p. 79 |
| Poster 13 | <b>Pepa</b> <i>et. al.:</i> A case study of formative feedback significance in gaining specific skills towards a successful long-term medical career   | p. 83 |

Posterparty: Thursday, 20. 4. 2017, 18:00

Poster 14	<b>Popovici et. al.:</b> Teaching in Dentistry in Timisoara: Past Experience, Current Trends, and Challenge of the Future	p. 85
Poster 15	<b>Prattes et. al.:</b> Progress in knowledge on antimicrobial therapy from medical students to specialists	p. 87
Poster 16	<b>Preusche et. al.:</b> Feedback for students, teachers, and faculty on the study program level: empowering stakeholders to enhance and maintain quality in competence-based higher education	p. 91
Poster 17	<b>Prokesch, Frühwirth:</b> An interactive seminar to develop grantsmanship	p. 95
Poster 18	<b>Pulko et. al.:</b> The effect of repetitive practice of practical procedures on students' perception of their skills and competences	p. 97
Poster 19	<b>Reischies et. al.:</b> Youtube Videos in Medical Education at the Medical University Hospital Graz	p. 101
Poster 20	<b>Rotaru et. al.:</b> Feedback quality, an important ingredient of the educational management recipe	p. 105
Poster 21	<b>Schwabeger et. al.:</b> The "Notfallseminar" of the "Medizinercorps Graz": Implementation of a specialised education programme in prehospital emergency medicine at the Medical University of Graz	p. 109
Poster 22	<b>Turk et. al.:</b> Long term diagnostic thinking outcomes with the usage of virtual patients	p. 113
Poster 23	<b>Verheyen et. al.:</b> Certified versus non-certified advanced life support training and self-assessed provider performance	p. vi
Poster 24	<b>Winter et. al.:</b> The first Full-Scale Care Process Simulation Training Course for the Management of Severe Burns	p. 117
Poster 25	<b>Zamuda et. al.:</b> How does the students' self-directedness in learning evolve through the years of undergraduate medical education?	p. 119

Contents: page 5



**Klinische Abteilung für Neonatologie**  
 Univ. Klinik für Kinder und Jugendheilkunde



Medizinische Universität Graz

**Background**

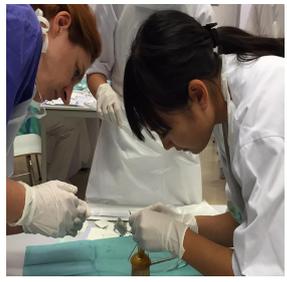
According to current guidelines for resuscitation of newly born infants after birth, drugs are rarely indicated during the uncommon event of neonatal resuscitation; yet, if needed the recommended administration route is via a "centrally positioned umbilical venous catheter".

Currently available neonatal manikins do not offer sufficiently realistic opportunities to train performance of umbilical venous catheterization.



We have developed a simple and resource-efficient, yet realistic training model using biological material. A single-use baby feeding bottle was filled with formaldehyde solution, the tip of the teat was cut and a piece of human umbilical cord of approximately 10cm length was inserted into the bottle through the teat. In a next step, a conventional baby doll was prepared by cutting two holes step both in the abdominal wall and the back to introduce the baby bottle from dorsal.

By using both biological material and a plastic manikin in our 'blended' training model, we were able to recreate real anatomic conditions to a large extent. As pieces of umbilical cord were provided by our hospital's delivery room, costs of the presented training model are moderate. After having adapted the baby doll once, preparation time is only needed to adapt the formalin filled bottle and the umbilical cord.





We have used this training model for postgraduate courses on neonatal resuscitation aiming at emergency physicians. So far, trainees' perceptions of the model were very positive. Trainees especially valued the opportunity to differentiate between arterial and venous umbilical vessels, which may provide a challenge for inexperienced personnel particularly under real-life, time-limited conditions. Being offered the opportunity to perform all steps necessary for successful umbilical venous catheter placement – including ligation and cutting of the umbilical cord, aspiration of fluid, injection of liquids and fixation of the catheter – was viewed favourably. As it should be the case whenever using biological material for training purposes, trainees are required to wear full personal protective equipment including glasses, face masks and gowns, rendering training conditions even more realistic.

**CONCLUSION:**

In essence, we have developed a training model for umbilical venous catheterization providing realistic anatomical conditions while being resource-efficient both from a financial and time-related perspective. According to our experience, this 'blended' training model can be implemented successfully in postgraduate education and training.

## Poster 1

**Practice of umbilical venous catheterization using a resource-efficient ‘blended’ training model**

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According to current guidelines for resuscitation of newly born infants after birth, drugs are rarely indicated during the uncommon event of neonatal resuscitation; yet, if needed the recommended administration route is via a “centrally positioned umbilical venous catheter”. As currently available neonatal manikins do not offer sufficiently realistic opportunities to train performance of umbilical venous catheterization, we have developed a simple and resource-efficient, yet realistic training model using biological material. A single-use baby feeding bottle was filled with formaldehyde solution, the tip of the teat was cut and a piece of human umbilical cord of approximately 10cm length was inserted into the bottle through the teat. In a next step, a conventional baby doll was prepared by cutting two holes both in the abdominal wall and the back to introduce the baby bottle from dorsal.

By using both biological material and a plastic manikin in our ‘blended’ training model, we were able to recreate real anatomic conditions to a large extent. As pieces of umbilical cord were provided by our hospital’s delivery room, costs of the presented training model are moderate. After having adapted the baby doll once, preparation time is only needed to adapt the formalin filled bottle and the umbilical cord.

We have used this training model for postgraduate courses on neonatal resuscitation aiming at emergency physicians. So far, trainees’ perceptions of the model were very positive. Trainees especially valued the opportunity to differentiate between arterial and venous umbilical vessels, which may provide a challenge for inexperienced personnel particularly under real-life, time-limited conditions. Being offered the opportunity to perform all steps necessary for successful umbilical venous catheter placement – including ligation and cutting of the umbilical cord, aspiration of fluid, injection of liquids and fixation of the catheter – was viewed favourably. As it should be the case whenever using biological material for training purposes, trainees are required to wear full personal protective equipment including glasses, face masks and gowns, rendering training conditions even more realistic.

In essence, we have developed a training model for umbilical venous catheterization providing realistic anatomical conditions while being resource-efficient both from a financial and time-related perspective. According to our experience, this ‘blended’ training model can be implemented successfully in postgraduate education and training.



21<sup>st</sup> Graz Conference on Medical Education - *Motivating feedback for satisfied students and teachers*  
20-22 April, 2017 - Szeged (Hungary)



## An integrated approach for education/training in Veterinary Public Health (VPH) by the Department of Veterinary Science, University of Turin: the experiences of the "VPH mobile clinic" and the "VPH practical weeks".

**Daniele De Meneghi\*, Alessandra Rota\*, Chiara Sfera\*, Tiziana Civera\*, Patrizia Nebbia\*, Alberto Tarducci\*, Luca Rossi\*, Marco Gandini\*, Mario Marino\*, Giovanni Tedde\*, Mauro Moretta\*, Giovanni Re\***

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### Introduction

All graduating veterinarians from European vet schools must demonstrate to have acquired the "Day One skills/competences", as set by the EAEVE-ESEVT in compliance with the EC Directive 2005/36(1). From 2008/09 to 2011/12 and from 2013/14 to 2016/17 academic years, in order to provide 4<sup>th</sup> and 5<sup>th</sup> year undergraduate veterinary students with more efficient tools for learning Veterinary Public Health (VPH) topics, two integrated practical teaching methods were respectively implemented at the course in Veterinary Medicine, University of Turin. The aims were to provide the "Day1 skills", with special reference to VPH (i.e. Preventive Veterinary Medicine/Population Medicine, and Food Hygiene/Inspection of Food of Animal Origin) taking also into account the OIE recommendations on the competencies of graduating veterinarians ("Day 1 graduates") to assure National Veterinary Services of quality (2).



Activity name	Involved	Type of activity	Methodology/Tools
Swine	Swine inspection	Practical	EU national control programme for TS, BSC, BIV
Cattle	TS skin test, and blood sera collection	Practical	National control evaluation programme for TS, BSC, BIV
Cattle & goats	Animal identification/tagging	Practical	National framework identification system
Horses	Blood sera collection (Enzoplasia test)	Practical	National control plan-DIA
Fish water fish and honey	Sample collection on farmed fish and honey/beehives	Practical	National monitoring plan on honeybees (PM)
Cattle/horses/goats	Visits at treatment farms on mountain pastures	Practical	Field register & movement documents and other surveillance/control activities
Pigs	Blood sera collection	Practical	Pseudorabies eradication plan
Wild ungulates (Gems and cervids)	Visit at local points for hunting control	Practical	National surveillance plan on wildlife health
Meat/seafood/animal products	Documental control of farmer markets and local animal fairs	Practical	Surveillance on markets/fairs
Control points and control animals	Management of regional and national databases for animal diseases	Practical	Control & peri-identification system

Table 1: selected examples of activities carried out during the "VPH mobile clinic"

### Materials & Methods

During the period 2008-2012, lecturers/teachers of the VPH disciplines -after having taught their respective curricular courses- did organize a series of scheduled field activities in collaboration with veterinary officials of the ASLTO3 (ASLs: "Azienda Sanitaria Locale" or Local Health Unit-Vet Services) in Turin Province. Groups of 5-7 students participated in those practical VPH training activities, called "VPH Mobile Clinic" (half-a-day duration), carrying out hands on activities covering a multifaceted set of VPH actions (see Table 1) -mainly related to preventive veterinary medicine, surveillance/control of listed animal diseases, etc- routinely performed by the vet officials during their day-to-day work within the so-called "Area A" of the ASL. Ad hoc seminars on selected VPH topics (i.e. livestock and pet identification systems) were also given (and still are) by the same vets during the curricular VPH courses/classes.

From 2013 to-date, in order to implement the revised veterinary curriculum at national level, the VPH practical training activities were re-designed and re-organized. Training activities now includes the same topics taught during the VPH Mobile Clinic, including a larger part on food hygiene/food inspection and meat inspection/slaughter activities (these are the activities relevant to "Area B" of the ASL system). Such training activity is now called "VPH practical weeks" (equivalent to 6 ECTS: 1 ECTS on topics relevant for "Area A", and 5 ECTS for "Area B") and it is provided to single students under the supervision of the ASLs veterinary officials only (without the presence of a teacher/lecturer). Students can rely on 15 ASLs throughout the Piemonte Region to take their practical VPH training, supervised by vets/tutors. Practical training on food hygiene/food inspection are performed at small-medium food processing plants (e.g. meat, milk/dairy products, fish, cash & carry activities, etc.), while practices on meat inspection/slaughtering activities are carried out at the small (cattle) abattoir inside the vet campus, and also at other slaughterhouses (cattle, swine, poultry, rabbit abattoirs) in the Region. Students have a common list of activities to be performed ([http://www.clmveterinaria.unito.it/html/tirocinio\\_stagione\\_infettive.pdf](http://www.clmveterinaria.unito.it/html/tirocinio_stagione_infettive.pdf)), daily recorded on a log-book and countersigned by the vet officials/tutors.

At the end of each academic year, a satisfaction and evaluation questionnaire is administered to students and vet officials/tutors, and the results are evaluated by the Practical Training Committee (PTC) DVS\_UNITO. The most relevant aspects evaluated in the questionnaires are listed in Table 2.



Selected examples of training activities (relevant for "Area A" and "Area B") carried out during the "VPH mobile clinic" and the "VPH practical weeks"

### Results

"VPH mobile clinic": during the period under review (2008-2012), a total of 612 students participated in 91 practical field sessions in selected sites (e.g. livestock farms, animal production units, horse sport events, animal fairs, kennels, etc.) in Turin province. At the end of each academic year, students gave a 15' presentation to the students from the other groups, to the teachers and the vet officials/tutors, and got evaluated (mean grade: 27/30).

"VPH practical weeks": in the period 2013-2016, a total of 495 students were sent out for their practical VPH training to the selected ASLs throughout Piemonte Region (subdivided according to the activities/topics relevant for "Area A" and for "Area B"; see Table 3). The satisfaction and evaluation questionnaires answered respectively by the students to evaluate the training received and by the vets/tutors to evaluate the students, yielded the following results: excellent 75% (students), 92% (tutors); good 23%, 7.5%; sufficient 2.5%, 0%; poor 0.5%, 0% (data provided in the graphs hereunder refer to the 2015/16 academic year only).

### Discussion and Conclusion

The two VPH training methods are not fully comparable, both have their pros and cons. However, students, lecturers and tutors positively evaluated both approaches as being interesting and very useful to complement and reinforce the curricular contents previously provided in the classroom courses.

The PTC consider important to introduce id-term and/or ongoing evaluations of the training activities, and to further reinforce the liaison with students and vet officials to timely discuss and solve possible difficulties encountered.

By the end of the current academic year, a re-evaluation of both experiences will be carried out and possible adjustments and improvements of the current method will be discussed.



Questionnaire done by the students during the practical training sessions concerning the quality of the training received	Questionnaire done by the tutors during the practical training sessions concerning the quality of the ASLs as training sites
Subject participation	Quality of the ASLs as training sites
Methodological quality of the training received	Quality of the ASLs as training sites
Relationship and collaboration with tutors	Quality of the ASLs as training sites
Practical and theoretical knowledge of the subjects of the training	Quality of the ASLs as training sites
Quantity of work performed	Quality of the ASLs as training sites
Autonomy and responsibility	Quality of the ASLs as training sites

Year	Area B activities	Area A activities
2013	32	7
2014	97	57
2015	98	52
2016	72	89
<b>Total</b>	<b>299</b>	<b>198</b>



Table 2: evaluation questions; Table 3: number of students participating in the "VPH practical weeks"; graphs showing results of satisfaction/evaluation questionnaires - 2015/16 academic year

**Acknowledgments:** the management of DVS\_UNITO would like to sincerely thank all vet officials/tutors from the 15 ASLs in Piemonte Region for their indispensable contribution during the "VPH practical weeks": without their valuable collaboration and dedicated work the VPH practical training activities would not have been possible. The contribution by Dr Vincenzo Fedele, former director Veterinary Services-ASLTO3 Pinerolo, who enthusiastically supported the "VPH mobile clinic" since its inception, is also acknowledged here.

## Poster 2

**An integrated approach for education/training in Veterinary Public Health (VPH) by the Department of Veterinary Science, University of Turin (DVS\_UNITO): the experiences of the “VPH mobile clinic” and the “VPH practical weeks”**

Daniele De Meneghi<sup>1</sup>, Alessandra Rota<sup>1</sup>, Chiara Sferra<sup>1</sup>, Tiziana Civera<sup>1</sup>, Patrizia Nebbia<sup>1</sup>, Alberto Tarducci<sup>1</sup>, Luca Rossi<sup>1</sup>, Marco Gandini<sup>1</sup>, Mario Marino<sup>2</sup>, Giovanni Tedde<sup>2</sup>, Mauro Moretta<sup>2</sup>, Giovanni Re<sup>1</sup>

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**Introduction:** All graduating veterinarians from European vet schools must demonstrate to have acquired the EAEVE-ESEVT “Day-One-skills”(1) and the OIE “Day1competencies” [2]. In order to provide 4-5<sup>th</sup> year undergraduate veterinary students with more efficient tools for VPH learning, from 2008/2009 to 2011/2012 academic years, and from 2013/14 to-date, two integrated practical teaching methods were respectively implemented.

**Methods:** During the period 2008-2012, lecturers/teachers of the VPH disciplines - after having taught their respective curricular courses - did organize a series of scheduled field activities in collaboration with veterinary officials of the ASLTO3 (ASL=Local Health Units-Vet Services) in Turin Province. Groups of 5-6 students participated in those practical VPH training activities, called “VPH Mobile Clinic” (half-a-day duration), carrying out hands on activities covering a multifaceted set of VPH action, routinely performed by vet officials. Ad hoc seminars on VPH topics have also been given by the same vets during VPH classes.

From 2013 to-date, in order to implement the revised veterinary curriculum at national level, the VPH practical training activities (6 ECTS) –now called “VPH training weeks”- are provided to single students under the supervision of the ASL vet officials only. Students can rely on 15 ASLs throughout the Piemonte Region to take their practical VPH training. Training activities on food hygiene are performed at small-medium food processing plants, while meat inspection activities are carried out at the small didactic abattoir at the vet campus, and at large slaughterhouses in the Region. Students have a common list of activities to be performed, daily recorded on a log-book and countersigned by the vet officials/tutors. A satisfaction and evaluation questionnaire is administered to students and to tutors at the end of each academic year, and the results are evaluated by the DVS\_UNITO Practical Training Committee (PTC).

**Results:** A total of 612 students participated in 91 practical sessions of the “Mobile VPH Clinic”. At the end of each academic year, students gave a 15’ presentation to the students from the other groups, to teachers and vet officials/tutors, and got evaluated (mean grade: 27/30). As regards the “VPH training weeks”, a total of 495 students

were so far sent out for their practical VPH training to the selected ASLs. The satisfaction questionnaires answered, respectively by the students to evaluate the training received, and by the vets/tutors to evaluate the students, yielded the following results: excellent 75% (students), 92% (tutors); good 23%, 7.5%; sufficient 2.5%, 0%; poor 0.5%, 0%.

**Discussion and Conclusion:** The two VPH training methods are not fully comparable, both have their pros and cons. However, students, lectures and tutors considered both approaches interesting and useful especially to complement and reinforce the curricular contents previously provided in classroom. The PTC considers important to reinforce the supervision/liaison on the students and vet officials and timely discuss difficulties encountered. By the end of the current academic year, a re-evaluation of both experiences will be carried out and the current method could be likely adjusted/improved.

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- [1] [http://www.eaeve.org/fileadmin/downloads/SOP/ESEVT\\_\\_Uppsala\\_\\_SOP\\_May\\_2016.pdf](http://www.eaeve.org/fileadmin/downloads/SOP/ESEVT__Uppsala__SOP_May_2016.pdf);
- [2] [http://www.oie.int/fileadmin/Home/eng/Support\\_to\\_OIE\\_Members/Vet\\_Edu\\_AHG/DAY\\_1/DAYONE-B-ang-vC.pdf](http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/Vet_Edu_AHG/DAY_1/DAYONE-B-ang-vC.pdf)





**Universiteit Utrecht**



**Faculty  
of Veterinary  
Medicine**  
Quality Improvement in  
Veterinary Education

## Workplace-based assessment tools for feedback and entrustment decisions in medical education: a systematic review

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### Background

An enhanced educational environment in health care professions can be achieved by adequate feedback and valid clinical assessment. Competency frameworks and various approaches for assessing learners in the clinical workplace have been introduced.

Entrustment decisions combine feedback and evaluation with permission to act under a specified level of supervision and the possibility to schedule learners for clinical duties.<sup>1</sup>

**Aim** To identify workplace-based assessment tools which indicate progression towards unsupervised practice, suitable for entrustment decisions and feedback to trainees in clinical education

### Methods

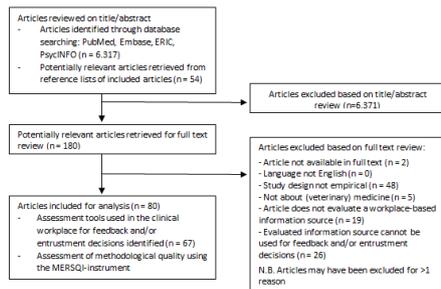


Figure 1: Flowchart of the search strategy and results

### Results

Table 1: Overview of different workplace-based assessment tools identified in the literature

Long practice observations	Short practice observations
<ul style="list-style-type: none"> <li>Multi-Source Feedback (MSF)</li> <li>Sheffield Peer Review Assessment Tool (SPRAT) (based on MSF)</li> <li>Ward Evaluations (WE)</li> <li>Preceptor Evaluations (PE)</li> <li>Patient Satisfaction Questionnaires (PSQ)</li> <li>In-training Assessment (ITA)</li> <li>Specifically, monthly performance evaluations</li> <li>Ambulatory Care Competency Assessment Tool</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Mini-Clinical Evaluation Exercise (Mini-CEX)</li> <li>Professionalism Mini-evaluation Exercise (P-MVE)</li> <li>Mini-clinical Evaluation Exercise (Mini-CEX)</li> <li>Professionalism Mini-evaluation Exercise (P-MVE)</li> <li>Personal Digital Assistant (PDA)-based Mini-Clinical Evaluation Exercise</li> <li>Outpatient Clinic Evaluation (OPC)</li> <li>Case Presentation (CP)</li> <li>Direct Observation Clinical Encounter Examination (DOCEE)</li> <li>Long Case</li> <li>Video Communication Assessment and Feedback (Video-CAF)</li> <li>Etc.</li> </ul>
<ul style="list-style-type: none"> <li>Procedure-based Assessment (PBA)</li> <li>Direct Observation of Procedural Skills (DOPS)</li> <li>Direct Observation of Procedural Skills in Surgery (SDOPS)</li> <li>Objective Structured Assessment of Technical Skills (OSATS)</li> <li>Non-technical Skills for Surgeons (NOTSS)</li> <li>Structured Assessment of Microsurgical Skills</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Objective Structured Clinical Examination (OSCE)</li> <li>Unrained – based on OSCE</li> <li>Integrated Procedural Performance Instrument</li> </ul>
<ul style="list-style-type: none"> <li>Case-based Discussion</li> <li>Case-based Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Product Evaluation</li> <li>Audit Assessment</li> <li>Assessment of referral letters</li> <li>Significant Event Analysis (SEA)</li> </ul>

### Discussion

Various assessment tools to provide learners with feedback or formative assessments, were identified. In the systematic review on direct observation tools, Kogan et al.<sup>2</sup> concluded that few assessment tools had been profoundly evaluated and tested. Our systematic review evaluates more recent studies and validity evidence existed for many of these tools.<sup>3</sup>

### Take-home message

Many workplace-based assessment tools were identified that potentially support learners with feedback on their development and support supervisors with providing feedback. As expected, only few articles referred to entrustment decisions. Nevertheless, the exciting tools or the principals could be used for entrustment decisions, supervision level or autonomy

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## Poster 3

**Workplace-based assessment tools for feedback and entrustment decisions in medical education: a systematic review**

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**Introduction:** An enhanced educational environment in health care professions can be achieved by adequate feedback and valid clinical assessment. Competency frameworks and various approaches for assessing learners in the clinical workplace have been introduced. Entrustment decisions combine feedback and evaluation with permission to act under a specified level of supervision and the possibility to schedule learners for clinical duties. This poster summarizes a review work that aims to identify workplace-based assessment tools which indicate progression towards unsupervised practice, suitable for entrustment decisions and feedback to trainees in clinical education.

**Methods:** A systematic search was performed in the PubMed, Embase, ERIC and PsycINFO databases. We included undergraduate and postgraduate medical education as well as veterinary education. Based on title/abstract and full text, articles were selected using predetermined inclusion and exclusion criteria. Information on workplace-based assessment tools was extracted using data coding sheets. The methodological quality of studies was assessed using the MERSQI instrument. Assessment tools were mapped to pre-formulated categories: simulation, short and long practice observations, case-based discussions and product evaluations.

**Results:** The literature search yielded 6,371 articles, of which 180 articles were evaluated in full text before including and reviewing 80 relevant articles. A total of 67 assessment tools were identified. Various assessment tools were used for feedback or formative assessments. In contrast, only few studies evaluated assessment tools as a resource for entrustment decisions. Validity evidence in terms of content validity, internal structure, relationships to other variables and response process was frequently reported, and the MERSQI quality score was 10.0 on average.

**Discussion:** Various assessment tools, sufficient to provide learners with feedback or formative assessments, were identified. An above average number of studies were identified within the short practice observations category that evaluated entrustment decision making in the operative or procedural setting. In the previously described systematic review on direct observation tools, Kogan et al. concluded that few assessment tools had been profoundly evaluated and tested. Nevertheless, in our systematic

review evaluating more recent studies validity evidence existed for many of the identified assessment tools. Some commonly used assessment tools, such as the Mini-CEX, DOPS and the OSCE, were tested on validity by multiple studies. Conclusion Many workplace-based assessment tools that can potentially support learners with feedback on their development and help supervisors with providing feedback were identified. However, few articles referred to entrustment decisions, supervision level or autonomy, likely because this area of interest has only recently received attention in the literature.



KARL-FRANZENS-UNIVERSITÄT GRAZ  
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## Students' Feedback as Quality Management Tool for Effective Teaching - Do Academic Teachers Take Advantage of It? A Pilot Study

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### • Objective:

Assuring and enhancing the quality of teaching is a challenge for academic institutions. Quality is difficult to define since it is subjective and dynamic. Teachers' self-assessment, peer evaluation and institutional monitoring have been the standard approach in the past. Introducing evaluation of academic teachers by their students through surveys and providing feedback has become available. Feedback is defined as sharing of information on actual performance to help guide future performance toward a desired goal (1). This assumption is the basis for evaluation and feedback for students. Students rely on constructive criticism and effective feedback from their teachers. Feedback, from a behaviorist perspective, has been shown to reinforce or modify behavior. However, it is unclear whether this assessment also refers to students' feedback on their teachers' performance in an academic environment. In order to determine whether academic teachers see students' feedback as quality management tool to modify and improve their performance, a prospective pilot study was designed.

### • Methods:

Qualitative and quantitative approaches were used to determine how academic teachers from different disciplines (natural sciences including medicine, engineering, education) utilize students' feedback as tool to validate and/or adjust quality of teaching. Feedback was provided through student satisfaction surveys which were routinely administered by all academic institutions without standardizing the content and were freely accessible to all academic teachers. A pilot study including 10 academic teachers, from non-profit (n=5) and for-profit (n=5) international academic institutions were involved in this study. The study was based on different items including teaching climate, access to feedback, factors (internal and external) believed to influence interpretation of feedback, strategies for improvement, etc. that were investigated by structured interviews (2,3), which were recorded, afterwards transcribed, and analyzed in a quantitative manner. Quantitative data were collected through a standardized survey. Survey reliability was assessed through test-retesting and determination of internal consistency.

### • Results:

Survey reliability and validity criteria were met in this pilot study. Comparing qualitative and quantitative findings indicated that there was remarkable agreement. Academic teachers were more inclined to regard feedback as constructive rather than an evaluation of their performance. The overall underlying notion was that striving for quality means that continuous quality improvement is required. There was general consensus that quality control of teaching was an individual responsibility rather than an institutional responsibility. Positive influence of feedback (e.g. ranked from valuable to useless) was more pronounced in academic teachers at for-profit organizations. There was a higher likelihood for implantation of structural changes rather than content changes reflecting students' feedback with no difference between the groups. However, teachers at for-profit academic institutions were more inclined to include content changes as well which was different from the approach of teachers employed by non-profit universities.

### • Conclusions:

In summary, respondents mentioned useful feedback associated with corrective measures. In general, academic teachers positively view students' feedback but our pilot study indicates that implementation as quality control measure depends on the type of academic institution the teacher is involved with. It is unclear however, whether different approaches of quality control standards are demanded by for-profit versus non-profit academic institutions which will be further assessed by a full-scale study. In conclusion, an academic environment should be created where feedback is expected and desirable as an essential component of effective teaching. Measures to enhance the quality of teaching should take into account the teaching conceptions if they are to be effective, as teaching approaches are strongly influenced by the underlying beliefs of the teacher.

### • References:

- (1) Ramaprasad A. On the definition of feedback. Behav Sci 1983; 28: 4-13.
- (2) Quantitative Inhaltsanalyse: Grundlagen und Techniken (Beltz Pädagogik) 2015 von Philipp Mayring
- (3) Interview und schriftliche Befragung: Grundlagen und Methoden empirischer Sozialforschung: Grundlagen und Methoden empirischer Sozialforschung 2012

## Poster 4

**Students' Feedback as Quality Management Tool for Effective Teaching - Do Academic Teachers Take Advantage of It?**

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**Objective:** Assuring and enhancing the quality of teaching is a challenge for academic institutions. Quality is difficult to define since it is subjective and dynamic. Teachers' self-assessment, peer evaluation and institutional monitoring have been the standard approach in the past. Introducing evaluation of academic teachers by their students through surveys and providing feedback has become available. Feedback is defined as sharing of information on actual performance to help guide future performance toward a desired goal [1]. This assumption is the basis for evaluation and feedback for students. Students rely on constructive criticism and effective feedback from their teachers. Feedback, from a behaviorist perspective, has been shown to reinforce or modify behavior. However, it is unclear whether this assessment also refers to students' feedback on their teachers' performance in an academic environment. In order to determine whether academic teachers see students' feedback as quality management tool to modify and improve their performance, a prospective pilot study was designed.

**Methods:** Qualitative and quantitative approaches were used to determine how academic teachers from different disciplines (natural sciences including medicine, engineering, education) utilize students' feedback as tool to validate and/or adjust quality of teaching. Feedback was provided through student satisfaction surveys which were routinely administered by all academic institutions without standardizing the content and were freely accessible to all academic teachers. A pilot study including 10 academic teachers, from non-profit (n=5) and for-profit (n=5) international academic institutions were involved in this study. The study was based on different items including teaching climate, access to feedback, factors (internal and external) believed to influence interpretation of feedback, strategies for improvement, etc. that were investigated by structured interviews, which were recorded, afterwards transcribed, and analyzed in a quantitative manner. Quantitative data were collected through a standardized survey.

**Results:** Comparing qualitative and quantitative findings indicated that there was remarkable agreement. Academic teachers were more inclined to regard feedback as constructive rather than an evaluation of their performance. The overall underlying notion was that striving for quality means that continuous quality improvement is required. There was general consensus that quality control of teaching was an individual responsibility rather than an institutional responsibility. Positive influence of feedback (e.g. ranked from valuable to useless) was more pronounced in academic teachers at for-profit organizations. There was a higher likelihood for implantation of structural changes rather than content changes reflecting students' feedback with no difference

between the groups. However, teachers at for-profit academic institutions were more inclined to include content changes as well which was different from the approach of teachers employed by non-profit universities.

**Conclusions:** In summary, respondents mentioned useful feedback associated with corrective measures. In general, academic teachers positively view students' feedback but our pilot study indicates that implementation as quality control measure depends on the type of academic institution the teacher is involved with. It is unclear however, whether different approaches of quality control standards are demanded by for-profit versus non-profit academic institutions which will be further assessed by a full-scale study. In conclusion, an academic environment should be created where feedback is expected and desirable as an essential component of effective teaching. Measures to enhance the quality of teaching should take into account the teaching conceptions if they are to be effective, as teaching approaches are strongly influenced by the underlying beliefs of the teacher.

**References:**

[1] Ramaprasad A. On the definition of feedback. Behav Sci 1983; 28: 4-13.



## Changes in the knowledge level related to infectious diseases and antibiotic use among medical students during the basic and clinical modules of their education

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### Introduction

The prevention, proper diagnosis and treatment of infectious diseases are one of the most important challenges of modern medicine. Without the proper level of preparedness and the adequate number of medical professionals, the management of communicable diseases is not feasible. The number of infectious disease specialists and clinical microbiologists is steadily declining worldwide.

The aim of our study was to evaluate the knowledge level of medical students on topics concerning epidemiology of infectious diseases and antibiotic use during the different phases of their education, as well as determining their affinity to pursuing a career related to this area.

### Methods

A self-administered questionnaire-based study (statement of assent, ethical permission: 3930 [16/2017]) was performed during practical classes of 2<sup>nd</sup> (basic module, *before* learning about infectious diseases *at all*) and 4<sup>th</sup> year (clinical module, after learning *medical microbiology and public health*) medical students at the University of Szeged.

The questionnaire included **30 questions** related to infectious diseases and antibiotic use (based on **medical microbiology, epidemiology of infectious diseases and infectiology**) with 10 questions per each topic, devised by experts of the respective fields. Statistical analyses were performed using IBM SPSS 24.0 software (level of significance:  $p < 0.05$ ).

### Results (general characteristics)

Data collection has been running since February 2017, with **264** respondents ( $n_{2^{nd}} = 152$  and  $n_{4^{th}} = 112$ ) involved so far. 66.3% of the respondents polled female, with an average age of **21.33 ± 0.99** years among 2<sup>nd</sup> year students and **23.71 ± 1.64** years among 4<sup>th</sup> year students.

**53.2%** of 2<sup>nd</sup> year students were satisfied with their grades and their academic achievements, while this number was **75.9%** for the 4<sup>th</sup> year students. **32.9%** of students in the basic module are involved in undergraduate research, whilst the students enrolling the clinical module polled **34.3%** for the same question. **2 people** were involved in research related to infectious disease.

### Acknowledgements

The authors would like to thank the colleagues of the **Department of Medical Microbiology and Immunobiology** and the **Department of Public Health** (Faculty of Medicine, University of Szeged) for the invaluable assistance in the realization of this research. In addition, the authors would like to thank everyone who has taken the time to participate and filled out our questionnaire.



### Results

The respondents listed the following as sources of their knowledge on proper antibiotic usage and infectious diseases:

- **Current university education** (78.0%)
- **Secondary school education** (70.5%)
- **Internet** (56.8%)
- **Scientific research articles, case reports** (20.5%)
- **Other, e.g. family, newspaper, media** (5.3%)

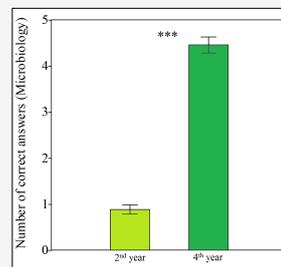


Figure 1: Number of correct answers from medical microbiology [mean ± SE]  
Basic module:  $0.88 \pm 0.10$   
Clinical module:  $4.46 \pm 0.42$

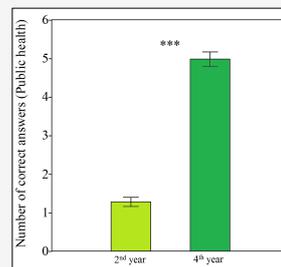


Figure 2: Number of correct answers from public health [mean ± SE]  
Basic module:  $1.27 \pm 0.12$   
Clinical module:  $4.98 \pm 0.19$

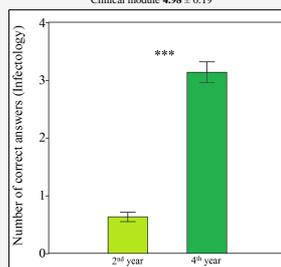


Figure 3: Number of correct answers from infectiology [mean ± SE]  
Basic module:  $0.63 \pm 0.08$   
Clinical module:  $3.13 \pm 0.18$

### Funding

The authors declare that there is no conflict of interest.

The first author received funding from the **Márton Áron Research Programme** financed by the Hungarian Ministry of Foreign Affairs and Trade.

**57.8%** of the respondents was aware of the medical field in which they want to work in (with **4<sup>th</sup> year students in majority**;  $p < 0.001$ ), the most popular fields were:

- **Surgery** (13.3%)
- **Paediatrics** (12.0%)
- **Anesthesiology and intensive care** (10.0%)
- **Cardiology** (8.0%)
- **Neurology** (7.3%)
- **Internal medicine** (6.7%)
- **Obstetrics and gynaecology** (6.7%)

Two people had intentions to work in a research position and only **one person** was interested in the field of medical microbiology/infectious disease.

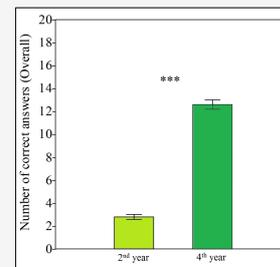


Figure 4: Number of correct answers from all topics included [mean ± SE]

Basic module:  $2.77 \pm 0.21$   
Clinical module:  $12.59 \pm 0.40$

### Conclusions

- Our results show a marked increase in the knowledge level of medical students during the **transition** from the basic module to their pre-clinical studies ( $p < 0.001$  in all cases). The **gradient of knowledge increase** seems to be evident among the 2<sup>nd</sup> and 4<sup>th</sup> year students.
- Almost **one-third** of 2<sup>nd</sup> year students had **zero** correct answers, indicating the importance of giving the students a proper foundation of knowledge in medical microbiology, while enrolling this module.
- The number of correct answers of the 4<sup>th</sup> year students was **less than 50% from all three question groups** (even though they have already passed exams from medical microbiology and public health). We believe that the knowledge of the 4<sup>th</sup> year students **falls below** the desirable threshold.
- According to our results, the responding medical students are **not interested** in working in the field of medical microbiology/infectious disease
- Our results suggest the need of the implementation of **novel teaching methods and curriculum improvement** related to the topic of infectious diseases and antimicrobial chemotherapy.



## Poster 5

**Changes in the knowledge level related to infectious diseases and antibiotic use among medical students during the basic and clinical modules of their education**Márió Gajdács<sup>1</sup>, Katalin Burián<sup>1</sup>, Edit Hajdú<sup>2</sup>, Andrea Szabó<sup>3</sup>, Edit Paulik<sup>3</sup><sup>1</sup> Department of Medical Microbiology and Immunobiology<sup>2</sup> 1<sup>st</sup> Department of Internal Medicine, Division of Infectious Diseases<sup>3</sup> Department of Public Health

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**Introduction:** The prevention, proper diagnosis and treatment of infectious diseases are one of the most important challenges of modern medicine. Without the proper level of preparedness and the adequate number of medical professionals, the management of communicable diseases is just not possible. The aim of our study was to evaluate the knowledge level of medical students on topics concerning epidemiology of infectious diseases and antibiotic use during the different phases of their education, as well as determining their affinity to pursuing a career related to this area.

**Methods:** A self-administered questionnaire-based study (statement of assent, ethical permission: 3930 [16/2017]) was performed during practical classes of 2<sup>nd</sup> (basic module, before learning about infectious diseases at all) and 4<sup>th</sup> year (clinical module, after learning microbiology and public health) medical students at the University of Szeged. Data collection has been running since February 2017. The questionnaire included 30 questions related to infectious diseases and antibiotic use (based on medical microbiology, epidemiology of infectious diseases and infectiology) with 10 questions per each topic, devised by experts of the respective fields. Statistical analyses were performed using SPSS Statistics 24.0 software.

**Results:** The 264 respondents (n=152 from the 2<sup>nd</sup> year students; n=112 from the 4<sup>th</sup> year students) were polled 66.3% female, with an average age of 21.33 ± 0.99 years among 2<sup>nd</sup> year and 23.71 ± 1.64 among 4<sup>th</sup> year students. 53.2% of 2<sup>nd</sup> year students and 75.9% of 4<sup>th</sup> year students were satisfied with their academic progress. 32.9% of 2<sup>nd</sup> year students has been involved in undergraduate research, while this number is 34.3% for 4<sup>th</sup> year students. 57.8% was aware of the field in which they want to work in (4<sup>th</sup> year students in majority; p<0.001), the most popular specialities being surgery, paediatrics, obstetrics/gynaecology, anaesthesiology and cardiology, while only one person was interested in infectology. The majority identified their current medical studies (83.7%) and high school education (76.9%) as one of their primary source of knowledge on the topic of infectious diseases and antibiotics. The 4<sup>th</sup> year students performed significantly better than the 2<sup>nd</sup> year students both overall (2.77 ± 2.64 vs. 12.59 ± 4.29 correct answers respectively; p<0.001) and from the subjects for which they have already passed exams (medical microbiology: 0.88 ± 1.24 vs. 4.46 ± 1.83; public health: 1.27 ± 1.47 vs. 4.98 ± 1.96 for 2<sup>nd</sup> and 4<sup>th</sup> year students

respectively;  $p < 0.001$  in both cases). 31.6% of students in the basic module had zero correct answers.

**Conclusions:** Our results show a noticeable increase in the knowledge level of medical students during the transition from the basic module to their pre-clinical studies. While the gradient of knowledge increase is evident, the number of correct answers of the 4<sup>th</sup> year students typically falls below 50% from the questions medical microbiology and public health. This is below the desirable threshold and suggests the need of the implementation of novel teaching methods and curriculum improvement.



# Evaluation of quality of telephone-cardiopulmonary resuscitation under contemporary emergency medical dispatcher training in Graz – a pilot study

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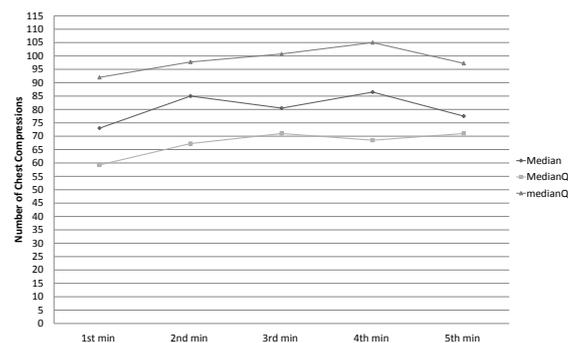
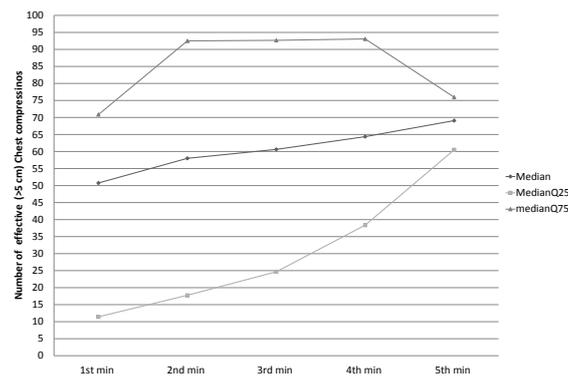
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**Introduction:** Sudden cardiac arrest is the most common cause of prehospital mortality in western countries. Despite recent advances in cardiopulmonary resuscitation (CPR), mortality remains unacceptably high. This may be at least in part caused by the frequent delay to initiation of chest compressions. Since 2010, resuscitation guidelines emphasize the telephonic instruction of lay rescuers by emergency medical dispatchers (EMDs) to perform CPR (t-CPR). However, currently no universally accepted standard to train EMDs in t-CPR exists. We aimed to evaluate the performance of lay rescuers in t-CPR when guided by an EMD trained according to local standards.

**Methods:** Ten healthy volunteers (last resuscitation training more than 4 years ago) with no affiliation to any medical profession participated. They were advised to enter a room individually where they found some kind of emergency and were asked to provide first aid to the best of their knowledge, and then call the emergency service. Further instructions were then given by the EMD according to current guidelines. All subjects were faced with a cardiac arrest situation (adult resuscitation manikin). The time for basic life support interventions as well as the number of total and effective chest compressions and the compression frequency were recorded.

The EMD completed training according to Austrian federal law and local institutional policies. He instructed the participants to assess breathing and thereafter provide chest compression-only-CPR. We assessed time-to-initiation of chest compressions and their quality (depth, rate and recoil).



**Results:** All subjects completed the measurement protocol. Shake and shout, the emergency call, and chest compressions were initiated  $8 \pm 3$  sec,  $25 \pm 11$  sec, and  $142 \pm 23$  sec after entering the room, respectively. Within the first 7 minutes, median total and effective chest compressions were 454 (Q25 344; Q75 506) and 317 (Q25 187; Q75 456), respectively. Inter-individual differences in chest compression frequency and depth were observed, although  $100 \text{ min}^{-1}$  and "push as hard as you can, at least 5 cm" were repeatedly instructed by the EMD.

**Conclusion:** The overall subjects' comprehension of EMD instructions is highly variable. Our preliminary results suggest that high quality CPR is achievable only in around half of the cases of t-CPR. Further studies with larger samples sizes, different cohorts and other protocols are needed to identify the necessary training of EMDs. A feedback of the lay rescuers' resuscitation attempts may be beneficial for the EMDs guidance.

Context: Existing full text publications in the field:

- <sup>1</sup> Berdowski, Beekhuis, Zwinderman, Tijssen, Koster (2009) Importance of the first link – Description and Recognition of an Out-of-Hospital Cardiac Arrest in an Emergency Call. *Circulation*. 119:2096-2102
  - <sup>2</sup> Akahane, Ogawa, Tanabe et al. (2012) Impact of telephone assistance on the outcomes of pediatric out-of-hospital cardiac arrest. *Crit Care Med* 2012 Vol. 40, No. 5
  - <sup>3</sup> Nolan, Soar, Zideman et al. (2010) European Resuscitation Guidelines for Resuscitation 2010. *Resuscitation* 81:1219-1276 (new guidelines from 2015 were published after this study)
  - <sup>4</sup> Ropollo, Pepe, Cimon et al. (2005) Modified cardiopulmonary resuscitation (CPR) instructions protocols for emergency medical dispatchers: rationale and recommendations. *Resuscitation* 65:203-210
  - <sup>5</sup> Edelson, Abella, Kramer-Johansen, et al. Effects of compression depth and pre-shock pauses predict defibrillation failure during cardiac arrest. *Resuscitation* 2006;71:137–45.
- Image from: <https://static.pexels.com/photos/271132/pexels-photo-271132.jpeg> under CC0 license

## Poster 6

**Evaluation of quality of telephone-cardiopulmonary resuscitation under contemporary Emergency medical dispatcher training in Graz – a pilot study**Martin R. Grübler<sup>1,2</sup>, Martin Horn<sup>3</sup>, Marko A. Scherllin<sup>3</sup>, Georg Richtig<sup>4</sup>, Walter Spindelboeck<sup>5</sup>, Nicolas D. Verheyen<sup>6</sup><sup>1</sup> Department of Internal Medicine, Division of Endocrinology and Diabetology, Medical University of Graz, Austria<sup>2</sup> Swiss Cardiovascular Center Bern, Department of Cardiology, Bern University Hospital, University of Bern, Switzerland<sup>3</sup> Austrian Red Cross, Bezirksstelle Graz Stadt, Samstag-Nacht Gruppe, Münzgrabenstrasse 151, Graz, Austria<sup>4</sup> Institute of Experimental and Clinical Pharmacology, Medical University of Graz, Austria<sup>5</sup> Department of Internal Medicine, Division of Gastroenterology, Medical University of Graz, Austria<sup>6</sup> Department of Internal Medicine, Division of Cardiology, Medical University of Graz, Austria

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**Introduction:** Sudden cardiac arrest is the most common cause of prehospital mortality in western countries. Despite recent advances in cardiopulmonary resuscitation (CPR), mortality remains unacceptably high. This may be at least in part caused by the frequent delay to initiation of chest compressions. Since 2010, resuscitation guidelines emphasize the telephonic instruction of lay rescuers by emergency medical dispatchers (EMDs) to perform CPR (t-CPR). However, currently no universally accepted standard to train EMDs in t-CPR exists. We aimed to evaluate the performance of lay rescuers in t-CPR when guided by an EMD trained according to local standards. **Methods:** We conducted a pilot study recruiting ten volunteers who were asked to perform first aid on a manikin under EMD (single operator) guidance. The EMD completed training according to Austrian federal law and local institutional policies. He instructed the participants to assess breathing and thereafter provide chest compression-only-CPR. We assessed time-to-initiation of chest compressions and their quality (depth, rate and recoil). **Results:** Participants were 18 – 61 years old and 6/10 were female. Median time to initiation of chest compression was 1.6 minutes. High quality compressions were achieved by 5/10 participants. Regular repeating of instructions lead to improved chest compressions between minutes 2 and 3 in 8/10 participants. **Conclusions:** Our preliminary results suggest that high quality CPR is achievable only in around half of the cases of t-CPR. Further studies with larger samples sizes, different cohorts and other protocols are needed to identify the necessary training of EMDs.



## Simulated Patients Program: Assessment of roleplay and feedback in psychiatry

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### Background

One major goal of the Simulated Patients (SP) Program at the Medical University of Vienna is a well-established training of roleplay and feedback for students.

Only an optimal and authentic roleplay as well as an adequate feedback make an increase in the students' communication skills possible, especially in the field of psychiatric exploration.

The aim of this study is to examine the quality of the SPs' roleplay and feedback for the students regarding four psychiatric diseases (anxiety, depression/suicidal tendency, somatic and borderline disorder).

### Method

529 students in human medicine ( $\bar{x}$ : 45% und  $\sigma$ : 55%; age: 23 years) and 29 teachers ( $\bar{x}$ : 79% und  $\sigma$ : 21%; range of age: 26 - 64 years) were interviewed during a psychiatric exploration course (8th semester) by a questionnaire. 21 SP were observed ( $\bar{x}$ : 68% und  $\sigma$ : 32%; range of age: 30 - 75 years). The assessment tool measures the quality of the SPs' roleplay and the SPs' feedback for students (Cronbach- $\alpha_{\text{Role}}$  von .72; Cronbach- $\alpha_{\text{Feed}}$  von .71), items see table 1.

Statistical analysis: descriptive statistics, mixed-design models.

### Results

The 14 questions on the quality of the SPs' competences regarding the roleplay of psychiatric disorders and the feedback for students were assessed in the median with "strongly agree" (- items, best possible evaluation) and "moderately agree" (0 items).

Overall the SP in the median were rated "very good". SPs' roleplay of the clinical picture "depression/suicidal tendency" was rated worse than the other disease pictures; the effects were small: "anxiety disorder" vs. "depression/suicidal tendencies" (adjusted  $p = .0096$ , Cohen's  $d = .202$ ), "somatiform disorder" vs. "depression/suicidal tendencies" (adjusted  $p = .012$ , Cohen's  $d = .225$ ), boxplots see figure 1.

### Discussion & conclusion

The extensive training of roleplay and feedback for students could be seen as a quality assurance of the SPs' competences in roleplaying of psychiatric disorders and giving adequate feedback.

That the role of depression, which is characterized by apathy and withdrawal behaviours, was assessed the worst, may be due to the fact that these symptoms make medical communication difficult in principle.

Further studies should investigate the SPs' roleplay of psychiatric disorders more in detail. Therefore it could make sense to use alternative methods (e.g. qualitative interviews) and to question also the actors.

### References

Bouter S., van Weel-Baumgarten E. (2013). Construction and validation of Nijmegen Evaluation of Simulated Patient (NESP): Assessing simulated patients' ability to role-play and provide feedback to students. *Academic Medicine*, 88(2):253-259.

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Tab. 1: Assessment tool (Viennese Questionnaire of SP);  
\*best possible evaluation VmGf XYbGf (Median = 1)

Adapted items of MaSP and NESP (see references)	
<b>Roleplay</b>	
The SP played his/her role authentically.*	
The SP overacted.	
The SP could be a real patient.	
The SP stayed in his/her role the whole time.*	
The SP challenged the student.	
The SP adjusted role on student's level.	
The SP's appearance fitted to the played role.*	
<b>Feedback</b>	
The SP gave feedback from the patient's point of view.*	
The SP gave feedback regarding the student's behaviour.*	
The SP gave constructive criticism and suggestions for improvement.	
The SP gave examples about good and bad aspects during the talk.*	
The SP said how he/she felt during the talk.*	
The SP communicated with "I-messages".*	
The SP behaved respectfully towards the student.*	
□ 1= strongly agree □ 2 = moderately agree □ 3= little agree □ 4 = not agree	

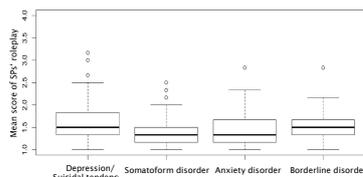


Fig. 1: Boxplots for the mean score of roleplay per clinical picture (students)



Foto: Shutterstock

## Poster 7

**Simulated Patients Program at Medical University of Vienna: Assessment of role-play and feedback in psychiatry**Monika Himmelbauer<sup>1</sup>, Eva Trappl<sup>1</sup>, Irene Steiner<sup>2</sup>, Anita Holzinger<sup>1</sup><sup>1</sup> Teaching Center<sup>2</sup> Center of Medical Statistics

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**Background:** One major goal of the Simulated Patients Program at the Medical University of Vienna is a well-established training of roleplay and feedback for students. Only an optimal and authentic roleplay as well as an adequate feedback make an increase in the students' communication skills possible, especially in the field of psychiatric exploration. The aim of this study is to examine the quality of the SP roleplay and feedback for the students regarding four psychiatric diseases (anxiety, depression/suicidal tendency, somatic and borderline disorder).

**Method:** 529 students in human medicine and 29 teachers were interviewed during a psychiatric exploration course (8<sup>th</sup> semester) by a questionnaire. The assessment tool measures the quality of the roleplay and the feedback of the SP. The items of the questionnaire are adapted items from two inventories developed in the Netherlands (Nijmegen Evaluation of Simulated Patient and Maastricht Assessment of Simulated Patient).

**Results:** The 14 questions on the quality of the actor's competences regarding the roleplay of psychiatric disorders and the feedback for students were assessed in the median with "completely agree" (9 items, best possible evaluation) and "moderately agree" (5 items). Overall the actors in the median were rated "very good". The actors' roleplay of the clinical picture "depression/suicidal tendency" was rated worse than the other disease pictures.

**Discussion:** The extensive training of roleplay and feedback for students could be seen as a quality assurance of the actors' competences in roleplaying of psychiatric disorders and giving adequate feedback. That the role of depression, which is characterized by apathy and withdrawal behaviours, was assessed the worst, may be due to the fact that these symptoms make medical communication difficult in principle. However, further studies should be performed to figure out the reason why the played psychiatric disorder "depression/suicidal tendencies" was evaluated worse.

**References:**

Bouter S., van Weel-Baumgarten E. (2013). Construction and validation of Nijmegen Evaluation of Simulated Patient (NESP): Assessing simulated patients' ability to role-play and provide feedback to students. *Academic Medicine*, 88(2):253–259.

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# Experiences after the establishment of a blended learning teacher education course for new staff members at medical universities in Hungary



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## Background

The deans of Hungarian medical universities have reached an agreement in 2013 that young new staff members must complete a brief course that would help them in their teaching work. The blended learning course was then designed and established in 2014 and 2015 by experienced educators from each university. With the current presentation we aim to provide our experiences after the first 2 years of the course.

## Methods

From University of Szeged we provide the first experiences based on personal feedbacks after the first occasion held in 2015. At the Semmelweis University we used SurveyMonkey anonymous feedbacks immediately after the consultations. The surveys focused on the website, lecture material, consultation and organisation of the course and finally on its general effect on a 1 (worst) to 5 (best) scale. We also collected open remarks from the participants. Regarding University of Pécs and University of Debrecen we report the progress of the course organization so far.

## Results

**SZEGED** The programme was organized for the first time in Szeged during the 2015/2016 Fall Semester and it was opened personally by the dean to emphasize its importance. Altogether 37 teachers participated in the one-day long non-obligatory course. Staff members from theoretical science departments were mostly positive, but colleagues of clinical background were quite skeptical.

**BUDAPEST** Altogether 96 participants, mostly from clinical departments took part in the course at 5 different occasions during the 2016/2017 Fall and Spring semesters. The survey response rate was 33%. We had many enthusiastic participants but sceptical ones as well. Participants who were from clinical departments valued the lecture material and the consultation less while giving similar marks for the organisation and for the website (Fig 1A). Based on their open remarks it seems that multiple problems (such as lack of time, organization and given value) hamper the quality of teaching in - especially but not only - the clinical context which finally deprioritized it and lead to the simple completion of the teaching duty. Still, 75% of the respondents indicated that the course would help them to improve their teaching skills (Fig 1B).

**PÉCS AND DEBRECEN** At both Universities the organizers are working on the necessary funding for the establishment of the course and to build a proper system of incentives for the aimed audience to participate effectively.

## Discussion

Scepticism, work overload and misunderstandings about the key technical terms related to medical education can hold back the successful implementation of a faculty development course. Participants often complain about more pressing problems that affect their everyday practice than the problems related to their teaching methods.

## Conclusions

Although a great many young teachers are enthusiastic about improving their educational training there is also a prevailing, parallel culture of negligence towards professional medical education which should be addressed by incentives that reward and expect quality rather than quantity of teaching.

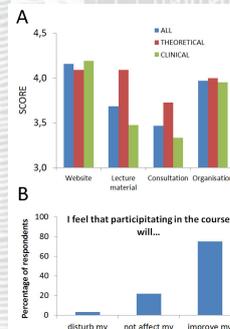


Fig 1. Feedbacks on the courses held at Semmelweis University, Budapest

### Outline of the faculty development course

The final course consists of 14 general and 4 clinically oriented approximately 20-minutes-long videos addressing various topics such as the 12 roles of a teacher or small group learning. After watching these on the dedicated website the participants write a test that checks the basic understanding of the lecture material. The lecture slides along with the lecture videos and audios can be downloaded from the website that also contains suggested further materials. This way the course is very flexible, the participants can watch or listen the material anywhere, anytime. The downloadable videos are available in both SD and HD formats to accommodate for different network capabilities. After the test participants continue with discussing their thoughts at a small group consultation with an experienced teacher in a theoretical or clinical setting based on their needs.



File structure of the website

An example of a streamed lecture

### Take-home message

In order to improve quality of teaching at our medical universities it is important to give value to exceptional educational activities and repeatedly emphasize the importance of dedicated teaching. However, the following must be addressed as well in order to give proper incentive to the course:

- Basic prerequisites of teaching at the university must be properly arranged (facilities, group size, allocated time, etc.)
- Staff shortages should be cared for by proper funding
- Enhanced quality assurance is essential

### Acknowledgements

We are grateful for the support by the TÁMOP-4.1.1.C-13/1/KONV-2014-0001 grant

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## Poster 8

**Experiences after the establishment of a blended learning teacher education program for new staff members at medical universities in Hungary**Levente Kiss<sup>1,2</sup>, Gábor Fritúz<sup>3</sup>, Katalin Barabás<sup>1,4</sup><sup>1</sup> Hungarian Society of Medical Education and Health Science, Szeged, Hungary<sup>2</sup> Department of Physiology, Semmelweis University, Budapest Hungary<sup>3</sup> Department of Anesthesiology and Intensive Therapy, Semmelweis University, Budapest, Hungary<sup>4</sup> Department of Behavioral Sciences, University of Szeged, Szeged, Hungary

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**Background:** The deans of Hungarian medical universities have reached an agreement in 2013 that young new staff members must complete a brief course that would help them in their teaching work. The blended learning course was then designed and established in 2014 and 2015 by experienced educators from each university.

**Summary of work:** With the current presentation we aim to provide our experiences after the first 2 years of the programme. These relate to the implementations of the programmes at the involved medical universities and we used feedbacks after the consultations to get an insight about the perceptions of the participants.

**Summary of results:** Above 200 participants, mostly from clinical departments took part in the course. Based on the feedbacks the participants had mixed feelings towards the material and along the many enthusiastic participants there were many who were hugely sceptical and negative about the whole concept of faculty development.

**Discussion:** Scepticism, work overload and misunderstandings about the key technical terms related to medical education can hold back the successful implementation of a faculty development program. Participants often complain about more pressing problems that affect their everyday practice than the problems related to their teaching methods.

**Conclusions:** Although a great many young teachers are enthusiastic about improving their educational training there is also a prevailing, parallel culture of negligence towards professional medical education which should be addressed by incentives that reward and expect quality rather than quantity of teaching.

**Take-home message:** In order to improve quality of teaching at universities it is important to give value to exceptional educational activities and repeatedly emphasize the importance of dedicated teaching.

## The students' view of video-assisted learning as an addition to traditional peer teaching of clinical examinations

Klara Masnik<sup>1</sup> MS, Luana Laura Luk<sup>1</sup> MS, Tadej Petreski<sup>1</sup> MS, Nejc Pulko<sup>1</sup> MS, Tamara Serdinšek<sup>1,2</sup> MD, Assoc Prof Sebastijan Bevc<sup>1,3</sup> MD PhD

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### BACKGROUND

At our faculty, 3<sup>rd</sup>-year medical students are taught clinical examinations under the supervision of peer tutors educated by teachers-mentors in the scope of the subject Internal medicine and propaedeutics. Two clinical examinations were recorded (abdominal and pulmonary system examination) in order to upgrade peer teaching (PT) and offer students additional way of revision. A survey was conducted to evaluate students' view of the video-assisted learning (VAL) as an addition to PT of clinical examinations.

### METHODS

The survey was carried out at Clinical Skills Laboratory in November 2016. Ninety-three students participated in the peer tutor supervised educational process for a month before taking objective structured clinical examination (OSCE). The videos were accessible on the Youtube platform five days prior to and mid OSCE. The students who watched the videos were asked to fill out a 5-question survey after their OSCE. The statistical analysis was performed using descriptive statistics.

### RESULTS

The videos were viewed by 85 out of 93 students. Most of the students viewed the videos 1-2 times (70%), 18% of students viewed them 3-4 times and 3% of students 4 times or more. Students felt that VAL improved their OSCE score ( $3.5 \pm 1.1/5$ ) (fig. 1).

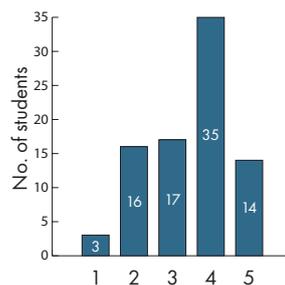


Figure 1: Students opinion on influence of VAL as an addition to peer teaching on OSCE score of clinical examinations.

Majority of participants (84%) would prefer combination of VAL and PT as the optimal teaching method for clinical examinations. Only 15% of students felt that introduction of VAL would be unbeneficial. Only one student wanted to learn clinical examinations through the videos only. All students agreed that VAL should not replace PT.

### DISCUSSION

Our results showed that students seek additional ways of learning, as 91% of students used the videos in their rehearsal for OSCE. In the previous study that was carried out at our faculty no statistically significant difference was found between the students who watched the videos and the control group in their OSCE score (1). Nevertheless, students felt that their results on the OSCE were improved by VAL. This may be due to higher self-confidence as videos enable them rehearsal of the protocol and the technique of clinical examination. In the future, it may be beneficial to make videos available from the start of the educational process.

### CONCLUSION

As students are seeking out new ways of learning, more effort should be made to offer students learning materials in different ways. VAL should be considered as an additional learning method in a PT.

### REFERENCES

1. Pulko N, Luk LL, Masnik K, Petreski T, Serdinšek T, Bevc S. The effect of video-assisted learning in addition to traditional peer teaching of clinical examination. (2017) SkillsLab Symposium 2017

## Poster 9

**The students' view of video-assisted learning as an addition to peer teaching of clinical examinations**

Klara Masnik<sup>1</sup>, Luana Laura Luk<sup>1</sup>, Tadej Petreski<sup>1</sup>, Nejc Pulko<sup>1</sup>, Tamara Serdinšek<sup>1,2</sup>, Sebastjan Bevc<sup>1,3</sup>

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**Methods:** The survey was carried out at Clinical Skills Laboratory in November 2016. Ninety-three students participated in the peer tutor supervised educational process for a month before taking objective structured clinical examination (OSCE). The videos were accessible on the Youtube platform five days prior to and mid OSCE. The students who watched the videos were asked to fill out 5 questions survey after their OSCE. The statistical analysis was performed using descriptive statistics.

**Results:** The videos were viewed by 85 out of 93 students. Most of the students viewed the videos 1-2 times (70%), 18% of students viewed them 3-4 times and 3% of students 4 times or more.

Students felt that VAL improved their OSCE score ( $3.5 \pm 1.1/5$ ) (fig. 1). Majority of participants (84%) would prefer combination of VAL and PT as the optimal teaching method for clinical examinations. Only 15% of students felt that introduction of VAL would be unbeneficial. Only one student wanted to learn clinical examinations through the videos only. All students agreed that VAL should not replace PT.

**Discussion:** Our results showed that students seek additional ways of learning, as 91% of students used the videos in their rehearsal for OSCE. In the previous study that was carried out at our faculty no statistically significant difference was found between the students who watched the videos and the control group in their OSCE score [1]. Nevertheless, students felt that their results on the OSCE were improved by VAL. This may be due to higher self-confidence as videos enable them rehearsal of the protocol and the technique of clinical examination. In the future, it may be beneficial to make videos available from the start of the educational process. →

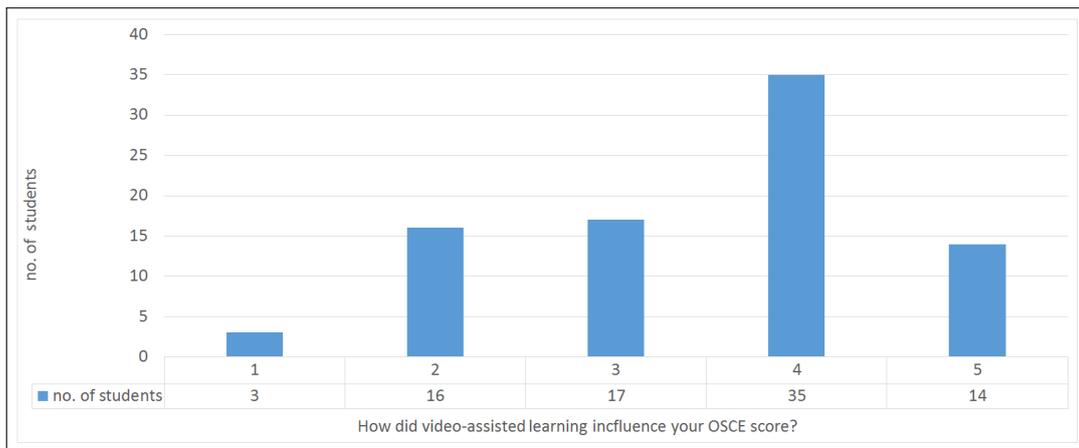


Figure 1: Students opinion on influence of VAL as an addition to peer teaching on OSCE score of clinical examination (1 - no influence, 5 - greatly improved the score).

**Conclusion:** As students are seeking out new ways of learning, more effort should be made to offer students learning materials in different ways. VAL should be considered as an additional learning method in a PT.

**References:**

[1] Pulko N, Luk L L, Masnik K, Petreski T, Serdinšek T, Bevc S. The effect of video-assisted learning in addition to traditional peer teaching of clinical examination. (2017) SkillsLab Symposium 2017



# Smartphone based decision support systems in acid-base disturbances and diagnostic performance of medical students

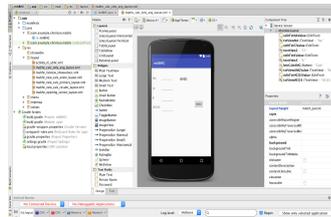
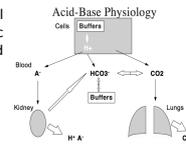
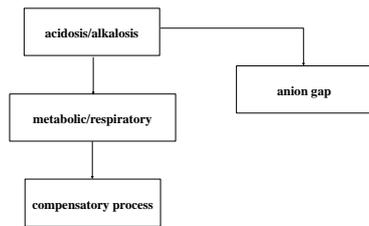
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**Introduction:** Evaluation of acid-base disturbances is commonly a crucial part of the assessment of critically ill patients. Experience and theoretical knowledge are both prerequisites for successfully identifying specific pathologies in an arterial blood gas analysis (ABG). We aimed to investigate whether medical students would complete ABG analysis quicker and more accurate with an android smartphone app.

**Methods:** We develop an application (app) for the operating system android. The mABHC, "mobile Acid Base Homeostasis Calculator". In a pilot phase six students were asked to complete the three tasks which consisted of commonly observed pathologies in an ABG.

Step by step approach of a ABG result (simplified):



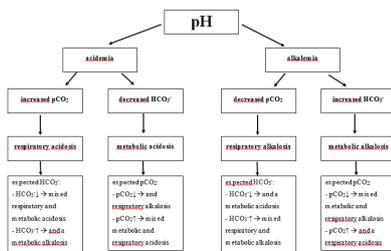
NI: 7.58  
 HCO<sub>3</sub>: 19.0 mmol/l  
 pCO<sub>2</sub>: 21.0 mmHg  
 Na: 127.0 mmol/l  
 Cl: 79.0 mmol/l  
 K: 3.2 mmol/l  
 ANG: 34.19997  
 ExpectedHCO<sub>3</sub>: 25.2 mmol/l  
 ExpectedpCO<sub>2</sub>: 14.5 mmol/l  
 ExpectedpCO<sub>2</sub>: 0.0 mmHg

-Respiratory Alkalosis and a metabolic alkalosis (if > 2 days)  
 -Respiratory Alkalosis compensation  
 + metabolic acidosis duo high ANG

Diagnosis as defined by the mABCH app:

	tempPCO <sub>2</sub> = 1	tempPCO <sub>2</sub> = 2	tempPCO <sub>2</sub> = 3
tempHCO <sub>3</sub> = 1	metabolic acidosis with secondary process	mixed acidosis and metabolic acidosis	metabolic acidosis with normal pCO <sub>2</sub> or secondary process
tempHCO <sub>3</sub> = 2	unlikely (high) respiratory acidosis with secondary processes	high respiratory acidosis with secondary process	unlikely (high) respiratory acidosis with secondary processes
tempHCO <sub>3</sub> = 3	unlikely (high) respiratory acidosis with secondary processes	respiratory acidosis with normal HCO <sub>3</sub> or secondary process	unlikely (high) respiratory acidosis with secondary processes

Algorithm used in the mABCH app:



Example of a code snippet of the mABCH app:

```

//PH = 7.38 (normal)
if (tempPCO2 == 1 && tempHCO3 == 1) {
    //Metabolic acidosis
    //if (tempPCO2 == 1 && tempHCO3 == 1) {
        //Metabolic acidosis
    }
}
//PH = 7.58 (normal)
if (tempPCO2 == 2 && tempHCO3 == 2) {
    //Mixed acidosis
    //if (tempPCO2 == 2 && tempHCO3 == 2) {
        //Mixed acidosis
    }
}
//PH = 7.58 (normal)
if (tempPCO2 == 3 && tempHCO3 == 3) {
    //Respiratory acidosis
    //if (tempPCO2 == 3 && tempHCO3 == 3) {
        //Respiratory acidosis
    }
}

```

**Results:** The median time to completion of a diagnostic task was 10.5 (IQR 6.75 – 17.25) minutes and 10 out of 18 pathologies were identified correctly. When using the mABHC app, median time to completion was 8.5 minutes (IQR 7.25 – 10.5) and all abnormalities (18/18) were classified correctly.

**Conclusion:** The preliminary results of the present pilot study suggest that the utilization of a smartphone app assists medical students in completion of diagnostic tasks. More data is needed to evaluate if the use of the app influences medical students' comprehension of the topic.

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 Berend K, de Vries APJ, Rijk O.B.G. G. Physiological Approach to Assessment of Acid-Base Disturbances. The New England Journal of Medicine. 2014 October;(371): p. 1434-1445.

## Poster 10

**Smartphone based decision support systems in acid-base disturbances and diagnostic performance of medical students**

Christian Müllner<sup>1</sup>, Marlene Pandis<sup>1</sup>, Georg Richtig<sup>2</sup>, Christian Trummer<sup>1</sup>, Verena Schwetz<sup>1</sup>, Nicolas Verheyen<sup>3</sup>, Martin R. Grübler<sup>1,4</sup>, Stefan Pilz<sup>1</sup>

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**Introduction:** Evaluation of acid-base disturbances is commonly a crucial part of the assessment of critically ill patients. Experience and theoretical knowledge are both prerequisites for successfully identifying specific pathologies in an arterial blood gas analysis (ABG). We aimed to investigate whether medical students would complete ABG analysis quicker and more accurate with an android smartphone app.

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**Conclusions:** The preliminary results of the present pilot study suggest that the utilization of a smartphone app assists medical students in completion of diagnostic tasks.



# Urinary System: An Integrated Teaching Approach

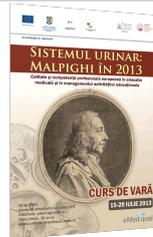
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## Background

- Integrated medical curricula are already in place in many medical schools around the world, particularly in the developed countries.
- The aim of integration is to bring together basic and clinical sciences so as to enable the medical student to concurrently develop theoretical knowledge and practical skills.
- Every year, Victor Babes University of Medicine and Pharmacy Timisoara (UMFVBT) offers a one-week summer school focused on a major body system.
- The urinary system was the only theme to be approached twice, namely in 2013 and 2015, at students' request.
- A total number of 66 students participated, 35 in 2013, and 31 in 2015.

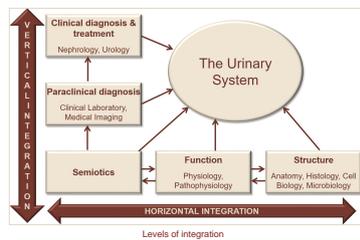


Summer School poster - 2013



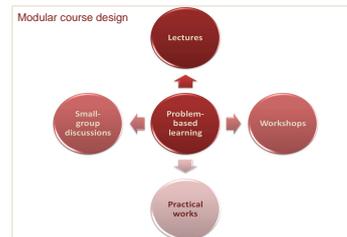
Summer School poster - 2015

## Design



- The modular course was designed to ensure integration:
  - **Horizontal integration** was achieved by bringing together pre-clinical disciplines (Anatomy, Histology, Physiology, Pathophysiology, Microbiology) on the one hand, and clinical ones on the other hand (Nephrology and Urology), with Semiotics linking the two levels.
  - **Vertical integration** between pre-clinical and clinical disciplines was further supported by adding paraclinical disciplines (Clinical Laboratory and Medical Imaging).
  - Even immunology basics were integrated with Urology and Nephrology in the context of kidney transplantation.

- Ten major themes, starting with the study of nephron and ending with the management of renal patient, were built around several case reports presented to students as a premise of teaching and ground of discussion.
- Seven hours of lectures and practical applications were scheduled each day. Each lecture was followed by workshops and small group discussions or practical works.
- Both expository and interactive teaching methods were used, with problem-based learning at the core of the educational approach.
- Case scenarios served the aim of applying integrated knowledge acquired from pre-clinical, paraclinical and clinical disciplines.



## Case scenarios, workshops and small-group discussions

- **Case scenarios** were used to facilitate integration of pre-clinical and clinical knowledge.
  - Physiological and pathophysiological mechanisms described in the first part of the module were used to build knowledge on various renal pathologies.
- **Workshops** were focused on specific topics.
  - Theoretical information was provided, including normal values.
  - Multiple-choice questions were asked at key points to help students summarize and self-assess their learning progress.
- **Small group discussions** (5 - 6 students/group):
  - Each group was assigned a case scenario and they had 20 - 25 minutes to prepare an answer
  - Each group introduced its case to the class and discussions were encouraged by the facilitator in order to reach consensus.
  - A major aim of these sessions was to provide a framework for student-centred learning, with the teacher assuming merely the role of guiding the process.

## Results and conclusions

- At the end of summer schools:
  - students' knowledge was assessed by a multiple choice question test, with results above average, which was expected since this was a free chosen activity by students who were among the first 10% of their years of study.
  - the modular course itself was evaluated by students through a questionnaire, with excellent results.
- Students were able to recognise abnormal renal health status and to indicate the correct course of treatment for various renal pathologies. They acquired better understanding of the newest developments in the field.
- Teachers gained experience in working together in an effort to design and implement a different type of course.



### Conclusions

- Small group teaching enhances the quality of teaching and learning processes.
- Close interaction with students enables appropriate feedback for improvement of teaching process.
- An integrated approach to teaching and learning allows students to better integrate pre-clinical knowledge into clinical context.

## Poster 11

**Urinary System: An Integrated Teaching Approach**

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Each year, Victor Babes University of Medicine and Pharmacy Timisoara offers a one-week summer school focused on one of the major body systems, addressed to students enrolled in the 2<sup>nd</sup> to 5<sup>th</sup> year. So far, the urinary system was the only theme to be approached twice, namely in 2013 and 2015, at students' request.

The modular course was designed to achieve both vertical and horizontal integration, so that to ensure thorough understanding of this system structure and functions, as well as selected features of various renal pathologies. Horizontal integration was achieved by an interdisciplinary approach, i.e. bringing together pre-clinical disciplines (Anatomy, Histology, Physiology, Pathophysiology and Microbiology) on the one hand, and clinical ones on the other hand (Nephrology and Urology), with Semiotics linking the two levels. Vertical integration between pre-clinical and clinical disciplines was further supported by adding paraclinical disciplines (Clinical Laboratory and Medical Imaging). Case scenarios provided within workshops and small group discussions served the aim of applying integrated knowledge acquired from pre-clinical, paraclinical and clinical disciplines. Even immunology basics were integrated with Urology and Nephrology in the context of kidney transplantation. The course consisted of lectures and practical applications, including workshops and small group discussions in a problem-based learning setting.

A total number of 66 students were selected based on letters of intent and interviews. At the end of the summer school, students' knowledge was assessed by a multiple choice question (MCQ) test, while the modular course itself was evaluated by students through a questionnaire. MCQ results were above average, which was expected since this was a free chosen activity by students who were among the first 10% of their respective year of study.

At the end of the course, the students were not only able to recognise abnormal renal health status, but also to indicate the correct course of treatment for various renal pathologies. Students also acquired a better understanding of the newest developments in the field, while teachers gained experience in working together in an effort to design and implement a different type of course.

Overall, the summer school experience was highly appreciated, as seen from the analysis of answers to the questionnaires for students and teachers. Conclusions: (1) Small group teaching enhances the quality of teaching and learning processes. (2) Close interaction with students enables appropriate feedback for improvement of teaching process. (3) An integrated approach to teaching and learning allows students to better integrate pre-clinical knowledge into clinical context.



## Using an audience response system with a communication backchannel to engage students in a large-scale dermatology class

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### Objective

Since 2014, every January for the span of 3 weeks a compulsory dermatology class is held for 4<sup>th</sup> year students at the Medical University of Vienna. Due to the high number of students (n = 640) the lecture is being live-broadcast to another lecture hall.

An audience response system (ARS) by Dolphin Interactive is used to foster interaction, students' engagement and to control students' compulsory daily attendance. The ARS additionally provides a backchannel feature, allowing students with any internet-capable device to send anonymous questions to the teacher that are presented on a message wall.

During the week (Mo-Thu) lecturers make use of many voluntary ARS questions in their presentations. Each Friday a mandatory "Test Yourself" exam takes place, assessing knowledge taught on the preceding days. Immediately afterwards results are being projected and the best students are rewarded with prizes.

The aim of this work is to report about students' and teachers' satisfaction with the use of the ARS.

### Methods

In 2014, 2016 and 2017 (in progress), students' perception of the use of the ARS was surveyed by means of online questionnaires, and teachers' feedback was gathered by mail in 2017 (in progress), incorporating two questions about what they liked and disliked.

### Results

Students' feedback was remarkably positive over the past years. They greatly value the anonymous backchannel, aiding them to overcome possible inhibition to ask questions in the large setting. Around half of the students reported to have used the ARS for asking questions (2017: 51.5%, n=103; 2016: 43.7%, n=151) of which 35.7% (2016) to 38.8% (2017) were answered often or always.

The majority of students agreed or strongly agreed (2014: 90.8%, n=112; 2016: 91.3%, n=103; 2017: 92.7%, n=151) that they **participated more actively than normally**, that the **ARS enhanced the class overall** (2014: 92.7%; 2016: 97.1%; 2017: 95.4%) and that it helped them to **identify their strengths and weaknesses** (2014: 88.9%; 2016: 91.3%; 2017: 92.180%).

Many comments expressed a desire to establish the teaching method using the ARS, and in particular the backchannel, in other curricula elements. The biggest complaint was the compulsory attendance each day.

Preliminary feedback from teachers highly overlaps with students' comments. They appreciate the ARS and its backchannel capability as a means to motivate students and receive valuable feedback to improve future lectures. But still teachers prefer a smaller group of students.

### Conclusion

The use of the ARS with its backchannel capability proved to be a valuable tool to promote interaction and motivation and it makes the large group lectures more enjoyable for students and teachers alike while supporting knowledge acquisition.

Just by using the ARS the dermatology class doesn't get so successful among students. It also takes motivated teachers who use the system adequately and respond to students' voting results and messages properly.

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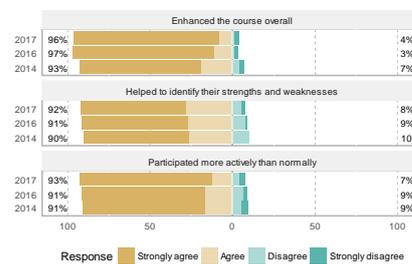


Figure 1: Frequency distribution of students' responses to questions regarding the ARS voting

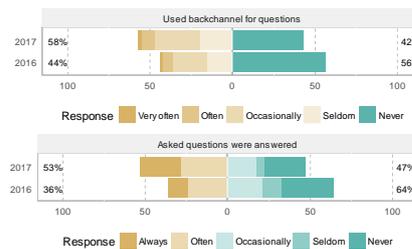


Figure 2: Frequency distribution of students' responses to questions regarding the backchannel feature of the ARS



### What students say...

*"The possibility to ask questions anonymously takes away the fear to ask a potentially stupid question. That greatly enhances the active participation in the lecture."*

*"The block was great, the digi vote questions in between impacted very positively on my attention! Because of the interactivity it was even funnier! Also the test yourself exams were good, because you can see where you still need to improve."*

*"Thank you that you have made so much effort, it was so far the best lecture in the study and never made a lecture so much fun! I've never learned so much like in derma! Each block should be like this, then the University would make a lot more fun (and sense)! Praise - thank you!"*

*"An excellent system to make lectures more interactive, exciting and instructive, if it were up to me I'd use this system in every lecture."*

*"Please persuade other disciplines to implement this Digi-voting. Even more important is the online message system. Please! Because one dares ask. I found this (finally) up to date! Thank you for the interesting introduction in dermatology. Among my colleagues, dermatology alone gained higher importance due to this lecture!"*

### What teachers say...

*"The interactive multimedia communication with students is very exciting and helps to incorporate questions arising from a large group of students in the lecture. The possibility to include questions in the lecture which can be answered on the spot loosens the atmosphere and promotes the attention of students."*

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## Poster 12

**Using an audience response system with a communication backchannel to engage students in a large-scale dermatology class**

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**Background:** Since 2014, every January for the span of 3 weeks a compulsory dermatology class was given for 4<sup>th</sup> year students at the Medical University of Vienna. Due to the high number of students (n = 640) the lecture is being live-broadcast to another lecture hall.

An audience response system (ARS) by Dolphin Interactive is used to foster interaction, students' engagement and to control students' compulsory daily attendance. The ARS additionally provides a backchannel feature, allowing students with any internet-capable device to send anonymous questions to the teacher via a message wall.

During the week (Mo-Thu) lecturers make use of many voluntary ARS questions in their presentations. Each Friday a mandatory "Test Yourself" exam takes place, assessing knowledge taught on the preceding days. Immediately afterwards results are being projected and the best students are rewarded with prizes.

The aim of this work is to report about students' and teachers' satisfaction with the use of the ARS.

**Methods:** In 2014, 2016 and 2017 (in progress), students' perception of the use of the ARS was surveyed by means of online questionnaires, and teachers' feedback was gathered by mail in 2017 (in progress), incorporating two open questions about what they liked and disliked.

**Results:** Students' feedback was remarkably positive over the past years. They greatly value the anonymous backchannel, aiding them to overcome possible inhibition to ask questions in the large setting. About half of the students reported to have used the ARS for asking questions (2017: 51.5%, n=103; 2016: 43.7%, n=103) of which 35.7% (2016) to 38.8% (2017) were answered often or always. The majority of students agreed or strongly agreed (2014: 90.8%, n=112; 2016: 91.3%, n=103; 2017: 92.3%, n=103) that they participated more actively than normally, that the ARS enhanced the class overall (2014: 92.7%; 2016: 97.1%; 2017: 96.1%) and that it helped

them to identify their strengths and weaknesses (2014: 88.9%; 2016: 91.3%; 2017: 93.2%). Many comments expressed a desire to establish the teaching method using the ARS, and in particular the backchannel, in other curricular elements. The main complaint was about the compulsory attendance each day. Preliminary feedback from teachers highly overlaps with students' comments. They appreciate the ARS and its backchannel capability as a means to motivate students and receive valuable feedback to improve future lectures. But still teachers prefer a smaller group of students.

**Conclusion:** The use of the ARS with its backchannel capability proved to be a valuable tool to promote interaction and motivation. It makes the large group lectures more enjoyable for students and teachers alike while supporting knowledge acquisition. The ARS alone does not make the dermatology class so successful among students. It also needs motivated teachers who use the system adequately and respond to students' voting results and messages properly.





## A CASE STUDY OF FORMATIVE FEEDBACK SIGNIFICANCE IN GAINING SPECIFIC SKILLS TOWARDS A SUCCESSFUL LONG-TERM MEDICAL CAREER

Authors: Miruna Pepa, Valeria Nicoleta Tarlui, Carina Neagu, Anca Tabita Filip  
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### Introduction

Feedback is an indispensable tool in providing performance in the academic environment. From our experience, as both students and tutors, we ascertained that in our university system, the summative feedback is primarily used in student's assessment, which leads to students focusing on promoting the exams rather than concentrating on gaining vital long-term skills for a successful medical career.

### Aim

The present study was purported to determine the students' perceptions of the usefulness of the formative feedback through different methods of learning.

### Materials and Methods

A group of 70 medical students, from Histology, Biochemistry, Pathophysiology and Dentistry Departments were subjected for 2 weeks to 4 new approaches and techniques of formative assessment

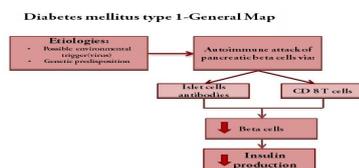
Histology interactive smart board sessions, highlighting key points that should be found when looking at the microscope helping students to identify the tissues.



Equipped laboratories where students are guided step by step while performing certain biochemical analyses.



Straightforward pathophysiology mechanisms involved in a disease process designed to assess student understanding.



Modern dental laboratories for live demonstrations and teaching simulators that improve theoretical and technical knowledge in dental procedures.



A 9 question survey was given out to students in the first, second, and third year of study from the General Medicine and Dentistry faculties.

These questions were focused on 4 topics:

- student-tutor communication (1 to 3),
- methods of teaching (4 to 6),
- methods of evaluating (7)
- student progress and student learning goals (8 and 9).

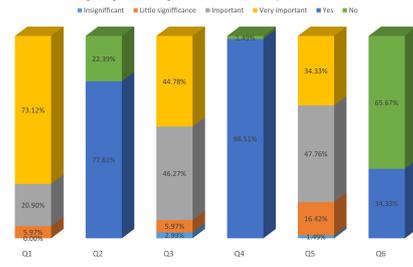
Field of study:  
Year of study:  
Subject:

**Survey for assessing teaching methods and the effects of formative feedback**

- How do you rate the impact of teacher-student communication on the learning process?  
1. Insignificant  2. Little significance  3. Important  4. Very important
- Do you consider that it is possible to enhance for communication between tutor and student? Please explain why?  
Yes  No
- Please rate the quality of the explanations received during the lab sessions  
1. Unsatisfactory  2. Satisfactory  3. Good  4. Very good
- Do you consider useful the use of drawings, sketches and med-maps used in addition to the conventional teaching material? Please explain your answer.  
Yes  No
- What is the level of satisfaction of using the IT infrastructure in the teaching process (Lectures, computer-aided education, etc.)?  
1. Insignificant  2. Little significance  3. Important  4. Very important
- Do you consider that other teaching methods should be employed in the lab sessions to help you in the learning process? Give examples of such methods.  
Yes  No
- How would you like to be assessed in the practical lab sessions: at the end of the semester or final test, or during the semester after each chapter?  
Exam at the end of the semester  Tests at the end of each chapter
- How important is for you to remember the contents of topics after finishing the year of study?  
1. Insignificant  2. Little significance  3. Important  4. Very important
- Do you consider that the knowledge acquired during practical lab sessions will help you in your future medical career?  
Yes  No

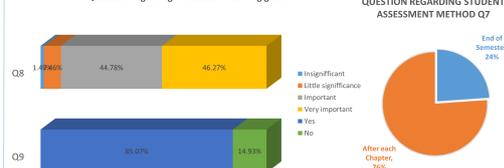
### Results

Questions regarding the teaching methods and ways to improve the formative feedback



- 73.12% of the students consider that the dialogue between the student and teacher as being very important while 21% consider it important.
- 90% of the students said that the answers and explanations given in the lab were good or great while only 10% of the people were barely satisfied with these answers.
- Regarding the methods of implementing the formative feedback in teaching 98.51% of the answers were positive for using drawings, sketches, and med-maps in the teaching process, and considered it was helpful for a better understanding of the subject and increase the chances of storing the information in the long-term memory.
- The use of the IT infrastructure and interactive smart learning within the labs was found useful by 80% of the students. They have also suggested that online classes and online exam simulations would improve the teaching process.

Questions regarding the student learning goals



### Conclusion

- Build stronger bridges and improve interaction between tutors and students
- Diversity and deepen approaches to improve formative assessment (feedback)
- n the university
- Strengthen students ability to find answers and to encourage them to address problems with which are not familiar
- Guiding students toward the development of their own strategies for the process of learning

## Poster 13

**A case study of formative feedback significance in gaining specific skills towards a successful long-term medical career.**

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**Introduction:** Feedback in the university environment is an active bidirectional process and has an important influence on students learning. Feedback signals about the topic or skills should be a strong part of future clinician's continuous professional development.

From our experience, as both students and tutors, we ascertained that in our university system the summative feedback is primarily used in student's assessment which leads to students focusing on promoting the exams rather than concentrating on gaining long-term skills and knowledge for a successful medical career.

This study aims to explore the improvements that can be made to the learning (feedback) process in order to include the formative feedback as seen from both the student's and tutor's perspective.

**Materials and methods:** We applied a case study research in which the unit of analysis was represented by groups of students from different medical fields (histology, pathophysiology, biochemistry and dentistry) and different years of study. The methods that we used were represented by: maintaining an appropriate interpersonal climate, improving the direct interaction between the student and the tutor, interactive sessions during presentation that were based on clinical cases, scientific experiments, using tools such as smart boards and medical devices and implementing the use of medical maps concept and draw schemes. We evaluated results using questionnaires in which students could quantitatively appreciate in which way they found formative feedback more effective in comparison with the summative feedback.

**Results:** The case study analyses revealed that the constructive feedback techniques led to a greater focus on developing medical skills on the student's side, as well as an improvement of the interaction between the tutor and the students. Another benefit was an increased level of attention and motivation for studying observed during and outside of classes.

**Conclusion:** In contrast to the summative feedback, the formative feedback also contributes to an improvement of communication skills needed in student's future medical career and also in establishing a strong physician-patient relationship. In order to enhance the quality of constructive feedback, we suggest implementing the use of virtual tools and systems which allow the tutor to apply formative assessment to offer immediate and efficient feedback.

## TEACHING IN DENTISTRY IN TIMISOARA: PAST EXPERIENCE, CURRENT TRENDS AND CHALLENGE OF THE FUTURE

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### Abstract

Teaching dental medicine was never easy! The main problems are related to the connection between theoretical dental and medical knowledge, skills, communication, and professional attitudes. Since graduates of medical dentistry have the right to practice on patients immediately after the license exam, we have to stringently evaluate the teaching methods and their effects on the abilities of graduates to practice.

Looking back: Before 2000, lectures were one-way transmission, much too long, and included a lot of less useful theoretical data. Practical work and clinical practice were not adapted to the graduates' needs. Many skills, professional attitudes, communication, integration of research, and building a professional medical doctor were lacking.

Current trends: The number of hours has significantly decreased but the content is still not completely adapted to modern requirements. The tendency to introduce interactive lectures is already visible but not enough implemented. Practical skills training has been significantly improved and students themselves perform specific manoeuvres on the patient. Still, there are too many hours of lectures and of practical work dedicated to preclinical disciplines, but training of practical important clinical skills is not sufficient. Training for scientific research is also insufficient. Teach the teacher is not a continuous target of university strategy.

Future challenges: What do students need to learn? What do we need to teach? Let's integrate clinical skills, professional attitudes, and communication in the curriculum, and adapt the content of lectures and clinical practice to the current necessities of students. Research must become one of the main goals of the curriculum because today's junior researchers will be the coming players.



### PAST

Lack of major interventions in the curriculum for dental studies resulted in an old-fashioned, teacher-centered system offered to students in early nineties. Learning was considered a unidirectional, and very formal transfer of knowledge, from a speaking teacher to a writing student. The very big quantity of useless information offered to students was assessed almost exclusively through theoretical summative exams. Due to the lack of suitable printed supports for learning, students often had to reproduce word by word to receive good marks. Both specific skills and professional attitudes were far less important than the knowledge of basic principles of dentistry. Most often transferred as tacit knowledge, research abilities were demanded of PhD students only. The lack of simulation systems (phantoms), rudimentary tools and dental equipment, as well as the very high price of the necessary consumables for students, made the education of dentistry far more difficult than it is today.



### PRESENT

A considerably reduced number of hours, better and better adapted to the student's needs for active participation has been the result of our efforts to introduce educational innovation. However, there is still a big potential to update the content to effectively adapt to the student's needs and their increasing knowledge and skills. Dedicated, simulation based learning methods help students learn and develop their practical skills in a far more suitable learning environment. Undergraduate students have the chance to participate in research activities, together with PhD students and teachers. There is still a big need of increased space dedicated to student activities, presently faced with limited room in the existing building of our faculty. It is hoped that future educational regulations will better satisfy the needs of senior students as well as the needs of patients. By following ADEE recommendations regarding the excellence in dental education, scholarly engagement of students through collaborative national and international educational and research activities are supported.



Recognising the varied contribution to teaching and learning that tutors can offer to students at the different stages of their education, an important



support is offered to the participation of tutors in teaching related processes.

### FUTURE

Concentrating on the effective development of skills and attitudes of our students, future actions will be focused to encourage innovation and insights into the educational experience of all members of the dental faculty, students, teachers, and tutors and to effectively disseminate new knowledge.

#### Future education techniques should use:

- State of the art operation rooms for dentistry
- Smart boards in the laboratory and classrooms
- 3D Scans
- Life video during surgery



#### Optical Coherence Tomography (OCT)



#### Lasers in dentistry.

This will be done through the effective participation of all educational actors involved in dental learning and encouraging the pursuit of



innovative educational methods and original research in dental education.

### CONCLUSIONS:

- Contextualization of teaching methods to the specific educational approach for dentistry is an important task of our medical educators.
- Structural changes which the UMFVBT has initiated can improve the future education for dentistry - presently still connected with passive, teacher-oriented learning methods - only if new technology is offered embedded with the necessary learning methods, aimed at stimulating active involvement of students.
- Together with better dentistry specific abilities, based on a more vocational approach, increased communication and networking abilities should help graduates to better relate to their peers as well as their patients.
- Simultaneously, better education for dental medicine in Romania must be supported by substantially improved and clarified rules, allowing for a harmonisation process between national and European standards and regulations.

Poster 14

**Teaching in Dentistry in Timisoara: Past Experience, Current Trends, and Challenge of the Future**

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Teaching in dental medicine was and still is not easy! The main problems are particularly related to the joint between theoretical dental, skills, communication, and professional attitude. In Romania long-term graduates of medical dentistry have the right to practice on patients immediately after the license exam. This is way we have evaluated back the teaching methods and their effects on the abilities of graduates to practice.

Looking back. Before 2000, lectures where too long, with one-way transmission of data, including a lot of less useful theoretical data, without any interactive tendency. It is suppose that this type of teaching was due at least in part to the lack of a written support for lectures. Practical works, and clinical stages have not been adapted to the graduates' necessities. Real skills, professional attitudes, communication, and integrations of research and in building of a professional medical doctor were lacking.

Current trends. In the present time the number of hours significantly decreased but the content is still not completely adapted to current requirements. Tendency to introduce real interactive lectures is already visible but not enough implemented. Teach the teacher should be a continuous target of the university strategy. Practical skills were significantly improved and students perform themselves specific maneuvers on the patient. Still there are too many hours of direct contact for lectures and practical works dedicated to preclinical disciplines, and we haven't a basic equilibrium between practical important skills and those without any practical importance. Courses for scientific research were not done before 2000, but their integration in the curriculum is necessary because this type of information becomes increasingly valuable to students in the current time.

Future challenges. What do we need to learn? What do we need to teach? Let's integrate skills professional attitude communication, in the curriculum adapting the content of lectures and clinical practice to the current necessities of students and teachers. Don't forget that research is one of the main goal of the present curriculum, because the today junior researcher will be the source of knowledge and they will be the next coming players.



Medical University of Graz

### Progress in knowledge on antimicrobial therapy from medical students to specialists

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**Background:**

Multidrug - resistant (MDR) bacteria and fungi are increasingly observed and associated with substantial socioeconomic burdens to the healthcare systems. Furthermore mortality rates are high due to infections caused by MDR pathogens. Antibiotic stewardship is therefore of utmost importance to avoid emergence of new resistance mechanisms, reduce health care associated costs and for successful treatment of MDR infections. We therefore performed a survey to investigate the knowledge and progress in knowledge on antibiotic and antifungal agents and therapy within students, residents, fellows and specialists.

**Methods:**

A questionnaire consisting of 18 questions was handed out at the University Hospital of Graz, Austria. Nine questions were about pharmacodynamics, pharmacokinetics and categorization of antibiotic and antifungal agents (=CatA). The remaining nine questions were about clinical use of antibiotics and antifungals (=CatB). In each category three questions were on a basic difficulty level, three on advanced and three on an expert level. The questionnaire was filled out anonymously.

**Results:**

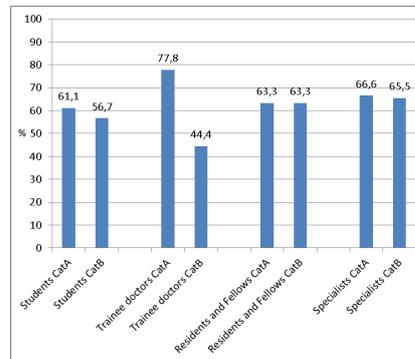
79 questionnaires were handed out and 51 were returned (63.3%). Detailed information on participating students and physicians are displayed in table 1.

On average, 10.8 /18 (60%) questions were answered correctly. Students answered 10.6/18 (58.9%) questions correctly, trainee doctors (=doctors in a three years training program to become general practitioner) 9.3/18 (51.7%), residents and fellows 11.3/18 (62.8%) and specialists 11.9/18 (66.1%).

Detailed results for correct answers in CatA and CatB are displayed in figure 1.

**Table 1** Detailed data on participating students and physicians

	N (=51)
<b>Students</b>	10 (19.6%)
5 <sup>th</sup> year of medical school	3
6 <sup>th</sup> year of medical school	7
<b>Trainee doctors</b>	11 (21.6%)
1 <sup>st</sup> year in training	5
2 <sup>nd</sup> year in training	6
<b>Residents/Fellows (doctors in training)</b>	20 (39.2%)
Internal Medicine	8
Surgery incl. orthopedic surgery	7
Neurology	3
Others	2
<b>Specialists</b>	10 (19.6%)
Internal Medicine	3
Surgery incl. orthopedic surgery	3
Neurology	1
Others	3



**Figure 1** Correct answers for the different groups

**Conclusion:**

Trainee doctors within the first 2 years of training showed the worst results in our study regarding clinical use of antimicrobial agents (CatB). This may implicate the need of an antibiotic refresher course, especially on clinical use of antibiotics and antifungal agents, within the first month of medical training.

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20.04. – 22.04.2017 Szeged/Hungary

## Poster 15

**Progress in knowledge on antimicrobial therapy from medical students to specialists**

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**Background:** Multidrug - resistant (MDR) bacteria and fungi are increasingly observed and associated with substantial socioeconomic burdens to the healthcare systems. Furthermore mortality rates are high due to infections caused by MDR pathogens. Antibiotic stewardship is therefore of utmost importance to avoid emergence of new resistance mechanisms, reduce health care associated costs and for successful treatment of MDR infections. We therefore performed a survey to investigate the knowledge and progress in knowledge on antibiotic and antifungal agents and therapy within students, residents, fellows and specialists.

**Methods:** A questionnaire consisting of 18 questions was handed out at the University Hospital of Graz, Austria. Nine questions were about pharmacodynamics, pharmacokinetics and categorization of antibiotic and antifungal agents (=CatA). The remaining nine questions were about clinical use of antibiotics and antifungals (=CatB). In each category three questions were on a basic difficulty level, three on advanced and three on an expert level. The questionnaire was filled out anonymously.

**Results:** 79 questionnaires were handed out and 51 were returned (63.3%). Detailed information on participating students and physicians are displayed in table 1.

On average, 10.8 /18 (60%) questions were answered correctly. Students answered 10.6/18 (58.9%) questions correctly, trainee doctors (=doctors in a three years training program to become general practitioner) 9.3/18 (51.7%), residents and fellows 11.3/18 (62.8%) and specialists 11.9/18 (66.1%). In CatA in mean 5.5 out of 9 (61.1%) questions were correct and 5.4 out of 9 in CatB (60%). Students answered 5.5/9 (61.1%) correctly in CatA and 5.1/9 (56.7%) in CatB, trainee doctors 7/9 (77.8%) in CatA and 4/9 (44.4%) in CatB, residents and fellows 5.7/9 (63.3%) in CatA and 5.7 (63.3%) in CatB and specialists 6/9 (66.6%) in CatA and 5.9/6 in CatB (65.5%) respectively.

	N	(=51)
Students	10	(19.6%)
5 <sup>th</sup> year of medical school	3	
6 <sup>th</sup> year of medical school	7	
Trainee doctors	11	(21.6%)
1 <sup>st</sup> year in training	5	
2 <sup>nd</sup> year in training	6	
Residents/Fellows	20	(39.2%)
Internal Medicine	8	
Surgery incl. orthopedic surgery	7	
Neurology	3	
Others	2	
Specialists	10	(19.6%)
Internal Medicine	3	
Surgery incl. ortopedic surgery	3	
Neurology	1	
Others	3	

Table 1: Results of questionnaire

→

**Conclusions:** Trainee doctors within the first 2 years of training showed the worst results in our study regarding clinical use of antimicrobial agents (CatB). This may implicate the need of an antibiotic refresher course, especially on clinical use of antibiotics and antifungal agents, within the first month of medical training.



# Feedback for students, teachers, and faculty on the study program level: empowering stakeholders to enhance and maintain quality in competence-based higher education



Ingrid Preusche, Evelyn Bergsmann, Petra Winter

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## Introduction

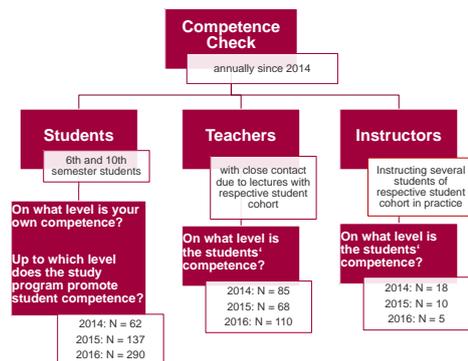
In competence-based higher education the definition of intended competences, which students shall acquire by a study program, is fundamental. Based thereon, continuous monitoring of the teaching process and the students' competences is also vital. However, evaluation instruments on study program level for competence-based higher education are scarce. Therefore, at the Vetmeduni Vienna, the Competence Check was developed in 2013 [1].

## Intended competence levels

The Competence Check is based on the intended competences of the veterinary study. Not only competences were defined but also the competences levels. Levels were defined for two aspects of competence (knowledge and skill) and two cohorts of students (students in the middle and students at the end of studies).

## Method

### Reported competence levels

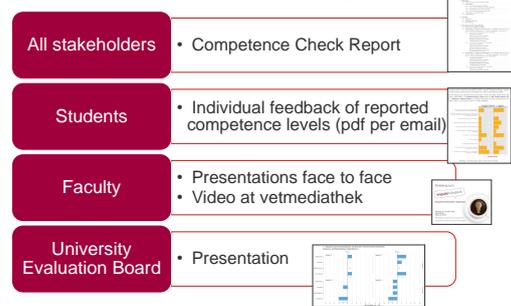


## References:

[1] Burger, C; Pirker, M; Bergsmann, EM; Winter, P (2015): Qualitätsmanagement in der kompetenzorientierten Lehre: Theorie und Praxis an der Veterinärmedizinischen Universität Wien. IN: Vettori, O (Hrsg.): *Eine Frage der Wirksamkeit? Qualitätsmanagement als Impulsgeber für Veränderungen an Hochschulen. Reihe 6: Qualität - Evaluation - Akkreditierung*. Bielefeld, UVW Webler, pp. 145-160. ISBN: 978-3-946017-00-4  
 [2] Bergsmann, E; Schultes, MT; Winter, P; Schober, B; Spiel, C (2015): Evaluation of competence-based teaching in higher education: From theory to practice. *Eval Program Plann.* 2015; 52:1-9  
 [3] IQM-HE (2016). *Handbook for Internal Quality Management in Competence-Based Higher Education*. Retrieved from: <http://www.vetmeduni.ac.at/en/iqm-he/>

## Results

The reported competence levels are contrasted with the intended competence levels. These results are widely disseminated at the Vetmeduni Vienna, which is crucial for the utilization of results. **Feedback is given to:**



## University Evaluation Board

- heterogeneous group of teachers, students, and vice rectorate of study affairs.
- analyses and interprets the results (in accordance with the stakeholder groups)
- develops recommendations for systematic measures to enhance teaching quality and the students' competences.

## Conclusion

Crucial in implementing such a new procedure (defining, screening, and enhancing competences; see [2, 3]) is making the process **transparent** to stakeholders. Stakeholders are continually informed about the process and **empowered** to use the results of the Competence Check.

## Further information

See Project IQM-HE which developed a more general quality management procedure based on the Competence Check [3].

## Poster 16

**Feedback for students, teachers, and faculty on the study program level: empowering stakeholders to enhance and maintain quality in competence-based higher education**

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**Introduction:** In competence-based higher education the definition of intended competences, which students shall acquire by a study program, is fundamental. Based thereon, continuous monitoring of the teaching process and the students' competences is also vital. However, evaluation instruments on study program level for competence-based higher education are scarce. Therefore, at the Vetmeduni Vienna, the Competence Check was developed in 2013 [1]. The Competence Check is based on the intended competences of the veterinary study. Not only competences were defined but also the competences levels. Levels were defined for two aspects of competence (knowledge and skill) and two cohorts of students (students in the middle and students at the end of studies).

**Material:** Since 2014, the Competence Check is administrated to students (6<sup>th</sup> and 10<sup>th</sup> semester), to teachers (in close contact due to lectures with students of the 6<sup>th</sup> and 10<sup>th</sup> semester), and to practical instructors of veterinary study every year. Students report the level at which they have acquired each competence, and the level at which it has been taught throughout their studies. Teachers and instructors report the average competence levels of the student cohort. In March 2016, data from N=290 students (6<sup>th</sup> and 10<sup>th</sup> semester) and N=110 data sets of teachers were obtained.

**Results:** The reported competence levels are contrasted with the intended competence levels. These results are widely disseminated at the Vetmeduni Vienna, which is crucial for the utilization of results. Feedback is given to: (1) students regarding their individual ratings for all their acquired competences (pdf per email), and the (2) the faculty, which is invited to presentations on the results. Furthermore (3), a detailed report of the results for all stakeholders is generated. Finally (4), the results are interpreted by the university's evaluation board, consisting of members of teachers, students, and vice rectorate of study affairs. The board analyses and interprets the results (in accordance with the stakeholder groups) and develops recommendations for systematic measures to enhance teaching quality and the students' competences.

**Conclusions:** Crucial in implementing such a new procedure (defining, screening, and enhancing competences; see [2,3]) is making the process transparent to stakeholders. Stakeholders are continually informed about the process and empowered to use the results of the Competence Check. →

### **References:**

- [1] Burger, C; Pirker, M; Bergsmann, EM; Winter, P (2015): Qualitätsmanagement in der kompetenzorientierten Lehre: Theorie und Praxis an der Veterinärmedizinischen Universität Wien. IN: Vettori, O [Hrsg.]: Eine Frage der Wirksamkeit? Qualitätsmanagement als Impulsgeber für Veränderungen an Hochschulen. Reihe 6: Qualität - Evaluation - Akkreditierung . Bielefeld, UVW Webler, pp. 145-160. ISBN: 978-3-946017-00-4
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- [3] IQM-HE (2016). Handbook for Internal Quality Management in Competence-Based Higher Education. Retrieved from: <http://www.vetmeduni.ac.at/en/iqm-he/>



## An interactive seminar to develop grantsmanship

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### Concept

Here we present a novel concept for an **interactive, semester-long seminar aimed at developing students' grant writing skills**. The seminar is being held since five years at the University for Applied Sciences, FH Joanneum in Graz in a **master's degree curriculum**, but could easily be adapted to medical students who can imagine to be involved in the grant acquisition process for clinical studies in their later career. The seminar was carefully designed for **co-teaching** demanding highly interdisciplinary and communicative skills from students and lecturers as well.

In the seminar, students are divided in several groups mimicking a **research consortium collaboratively working on a grant application** for a fictitious clinical multi-centered study in the field of **personalized medicine**. Typically, areas of expertise covered by the single groups are: (1) Project management and cohort recruitment; (2) Genomics; (3) Epigenomics; (4) Transcriptomics; (5) Proteomics; (6) Metabolomics; and (7) Microbiomics (Fig 1).

At the beginning of the semester students are introduced to the *modus operandi* and are asked to present **research and review papers** that were assigned by the lecturer. These paper presentations aid the immersion into the area of expertise the groups should cover within the consortium. Students are also encouraged to identify themselves with their parts in the consortium by coining a name (e.g. Institute for Genome Research) and designing a logo (examples are given in Fig 2), or even write fictional curricula vitae. The topic of the grant is provided by the lecturers and a **comprehensive introduction into the relevant research fields** is given at the beginning of the semester. Additionally, **students are familiarized with scientific writing skills, grant application procedures, and relevant research methods**. The structure and formal framework of a proposal is explained in a dedicated lecture unit on the basis of a **Horizon 2020 proposal**.

Two thirds into the semester the first concepts, developed by the students are presented in a **"progress report"** session, after which **comprehensive feed-back** is given by the lecturers. One end point is the **"final report"** session, where every consortium member presents their contribution to the proposal and has to answer critical **questions about their approaches, methods, and budgeting**. The second end point is **submission of a cohesive written proposal at the end of the semester**.

Outside of the class room, the moodle platform and email is used as means of continuous communication between lecturers and students. Moreover extensive use of social media of choice come into play naturally. Lecture units, student's presentations, and discussions are all **held in English language**.

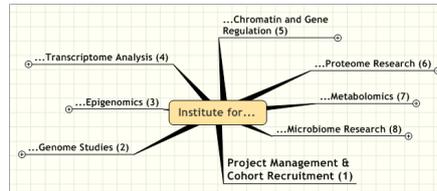


Figure 1. Suggested group division as basis for students. Based on these suggestions students are asked to identify as a group promoting the role-play character of the seminar.

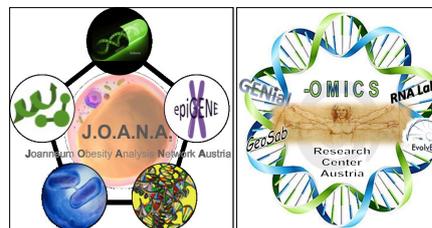


Figure 2. Consortium logos generated by students. Early in the semester students are divided into "consortium members" and are asked to choose a name based on the suggestions in Figure 1. They also are encouraged to design a consortium logo. Examples are given from 2013 and 2015.

<p><b>All groups (1-7)</b></p> <ul style="list-style-type: none"> <li>State motivation</li> <li>Define area of expertise</li> <li>Elect a head of institute or CEO</li> </ul>	<ul style="list-style-type: none"> <li>Think up an organisation name, type (institute, center, faculty, enterprise), and design a logo</li> </ul>
<p><b>Group 1) – Project management</b></p> <ul style="list-style-type: none"> <li>Provide a framework for the project (introduction and background)</li> <li>Manage interaction and timing of groups (milestones and deadlines)</li> <li>Budget considerations</li> <li>Human resources (HR)</li> <li>Optional: Ethics considerations</li> <li>Devise strategies for cohort recruitment</li> </ul>	<p><b>Groups (2-7)</b></p> <ul style="list-style-type: none"> <li>Devise experimental design</li> <li>Define cohort, samples, sample size and sampling method</li> <li>Specify interactions with other centers</li> <li>Sub-project management (budget, HR, milestones)</li> <li>Choose technology platform</li> </ul>

Figure 3. Task assignment for consortium groups. Initially these task assignments are continuously refined by the lecturers. The exact specification of the task is taken over by the project management group as the semester progresses.

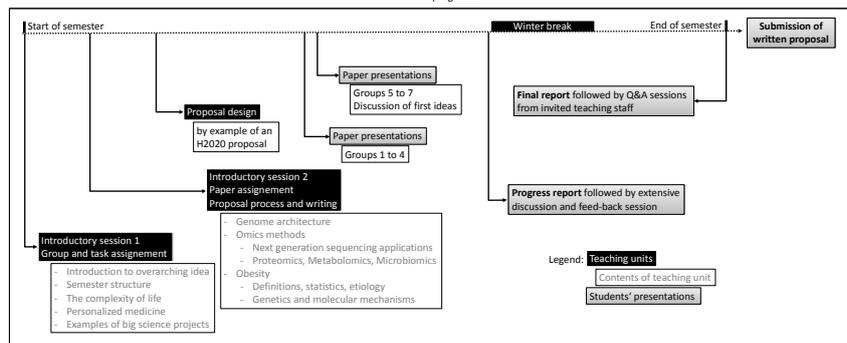


Figure 4. Time line of a typical semester as detailed in the text above.

### Conclusion

This hands-on seminar helps students to practice and improve: (1) their understanding and communication of science in English; (2) literature-based writing skills; (3) their ability to perform as a team within and between the groups; and ultimately, (4) their grantsmanship, by providing an interactive playground with comprehensive insight into the proposal writing process. With this approach and the provided scientific topic and specializations this seminar is highly integrative in nature as it draws from and enforces the content of several lectures the students are exposed to during their master curriculum.

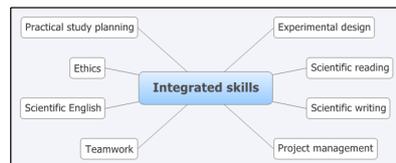


Figure 5. Integrated skills that are demanded and emphasized in this seminar.

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## Poster 17

**An interactive seminar to develop grantsmanship**Andreas Prokesch<sup>1,2</sup>, Matthias Frühwirth<sup>3</sup><sup>1</sup> Institute of Cell Biology, Histology, and Embryology, Medical University Graz, Graz, Austria<sup>2</sup> FH Joanneum, University for Applied Sciences, Graz, Austria<sup>3</sup> Human Research Institute of Health Technology and Prevention Research, Weiz, Austria

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Here we present a novel concept for an interactive, semester-long, co-teaching seminar aimed at developing students' grant writing skills. The seminar is being held since five years at the University for Applied Sciences, FH Joanneum in Graz in a Master's degree curriculum, but could easily be adapted to medical students who can imagine to be involved in the grant acquisition process for clinical studies in their later career.

In the seminar, students are divided in several groups mimicking a research consortium collaboratively working on a grant application for a fictitious clinical multi-centered study. Typically, areas of expertise covered by the single groups are: (1) Project management and cohort recruitment; (2) Genomics; (3) Epigenomics; (4) Transcriptomics; (5) Proteomics; (6) Metabolomics; and (7) Microbiomics. At the beginning of the semester students are introduced to the modus operandi and are asked to present research and review papers that were assigned by the lecturer. These paper presentations aid the immersion into the area of expertise the groups should cover within the consortium. Students are also encouraged to identify themselves with their parts in the consortium by coining a name (e.g. Institute for Genome Research) and designing a logo. The topic of the grant is provided by the lecturers and a comprehensive introduction into the relevant research fields is given at the beginning of the semester. Additionally, students are familiarized with scientific writing skills, grant application procedures, and relevant research methods. The structure and formal framework of a proposal is explained in a dedicated lecture unit on the basis of a Horizon 2020 proposal. Two thirds into the semester the first concepts developed by the students are presented in a "progress report" session, after which comprehensive feed-back is given by the lecturers. One end point is the "final report" session which is open to the entire faculty teaching staff. Each consortium member presents their contribution to the proposal and has to answer critical questions about their approaches, methods, and budgeting. The second end point is the submission of a written, cohesive proposal at the end of the semester. Additionally to the class room, the moodle platform and email is used as means of continuous communication. Lecture units, students' presentations, and discussions are all held in English language.

Hence, this hands-on seminar with role-play character helps students to practice and improve: (1) their understanding and communication of science in English; (2) literature-based writing skills; (3) their ability to perform as a team within and between the groups; and ultimately, (4) their grantsmanship, by providing a comprehensive insight into the proposal writing process.

## THE EFFECT OF REPETITIVE PRACTICE OF PRACTICAL PROCEDURES ON STUDENTS' PERCEPTION OF THEIR SKILLS AND COMPETENCES

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University of Maribor  
Faculty of Medicine

### Introduction

At our faculty, we teach a series of practical skills (PS) in scope of the subject *Propedeutics*. The aim of this subject is to ease the transition into a clinical environment for students by practicing PS on manikins in Clinical Skills Laboratory (CSL). A survey was conducted to evaluate the effect of repetitive practice of PS in CSL on students' perception of their skills and competences.

### Methods

The students and residents answered a series of questions regarding their first-time procedure of PS on a patient. Participants were divided in one of the two groups: those who practiced PS on manikins less than or equal to three times (group 1) and those who practiced PS more than three times (group 2) for each of the examined clinical skill. Student's T-test for independent samples was used for statistical analysis. Statistical significance was set at  $p < 0.05$ .

### Results

The survey was filled out by 41 participants. The results showed statistically higher mean answer scores in group 2. Group 2 had statistically higher self-confidence, reduced fear of mistake, enhanced familiarity with the procedure and materials. Both groups were indecisive on whether or not more practice on the models would improve their first procedure of PS on the patient (Fig. 1).

More detailed analysis according to different PS showed statistically significant higher, reduced fear of mistake, greater familiarity with the procedure and the materials used during the procedure of PS in group 2 (Table 1).

### Discussion

According to our results, more practice of PS in CSL significantly lifts student's self-confidence, enhances familiarity with the procedure and materials and decreases students fear of a mistake during the procedure. Participants agreed that they have enough possibilities for practice in CSL before performing PS on the patients. In the future, students should be offered also a possibility of a structured PS learning in a clinical environment after the practice in CSL in order to gain more confidence and dexterity.

### Conclusion

The repetitive practice on manikins proved to be beneficial for students' first encounter with PS in clinical environment. The limited time students spend in the clinical environment can be used more effectively as students are already familiar with materials and procedure of PS.



Figure 1: Comparison of mean answer scores from group 1 and group 2.

	NO. OF STUDENTS	SELF-CONFIDENCE	FEAR OF MAKING A MISTAKE	FAMILIARITY WITH PROCEDURE	FAMILIARITY WITH MATERIALS	NEEDED MORE PRACTICE
RECTAL EXAMINATION	group 1	9	1.8	1.7	2.2	2.3
	group 2	11	3.5	3.6	4.2	3.9
p-value		< 0.001	< 0.001	< 0.001	0.05	0.05
VENIPUNCTURE	group 1	6	2.0	2.0	2.7	2.3
	group 2	26	3.3	3.0	4.0	3.9
p-value		0.06	0.13	0.08	0.05	0.41
INFUSION	group 1	6	1.8	1.8	2.5	2.3
	group 2	9	2.7	2.8	3.3	4.1
p-value		0.30	0.11	0.29	0.05	0.52
INTRAMUSCULAR INJECTION	group 1	5	1.8	1.8	2.2	2.2
	group 2	21	3.2	3.2	3.6	3.9
p-value		0.08	0.05	0.12	0.26	0.10
SUBCUTANEOUS INJECTION	group 1	5	1.6	1.4	1.8	1.8
	group 2	15	3.0	2.9	3.3	3.1
p-value		0.08	0.02	0.13	0.15	0.48
RADIAL ARTERY PUNCTURE	group 1	6	1.2	1.0	1.3	1.3
	group 2	10	3.1	3.1	3.7	4.1
p-value		< 0.001	< 0.001	< 0.001	< 0.001	0.33
VENOUS CANNULATION	group 1	5	1.8	1.8	2.2	2.2
	group 2	12	2.8	2.8	3.5	3.8
p-value		0.16	0.09	0.19	0.23	0.7
URINARY CATHETER	group 1	5	1.6	1.4	2.0	2.0
	group 2	11	3.7	3.6	4.6	4.6
p-value		0.02	< 0.001	0.05	0.04	0.76

Table 1: Mean answer scores for individual PS with related p-values.

Poster 18

## The effect of repetitive practice of practical procedures on students' perception of their skills and competences

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**Introduction:** At our faculty, we teach a series of practical skills (PS) in scope of the subject Propedeutics. The aim of this subject is to ease the transition into a clinical environment for students by practicing PS on manikins in Clinical Skills Laboratory (CSL). A survey was conducted to evaluate the effect of repetitive practice of PS in CSL on students' perception of their skills and competences.

**Methods:** The survey was carried out in January 2017. The students and residents answered a series of questions regarding their first-time procedure of PS on a patient (self-confidence, fear of making a mistake, familiarity with the procedure and materials). Participants were also asked whether they would need more practice on manikins prior performing PS for the first time on a patient. The questions were answered on a scale from 1 to 5, where 5 represented highest self-confidence, lowest fear of making a mistake, and highest familiarity with the procedure and materials. Participants were divided in one of the two groups: those who practiced PS on manikins (regular and elective courses or workshops in propaedeutics) less than or equal to three times (group 1) and those who practiced PS more than three times (group 2) for each of the examined clinical skill (rectal examination, venepuncture, infusion set up, intramuscular injection, subcutaneous injection, radial artery puncture, venous cannulation and urinary catheterization). Student's T-test for independent samples was used for statistical analysis. Statistical significance was set at  $p < 0.05$ .

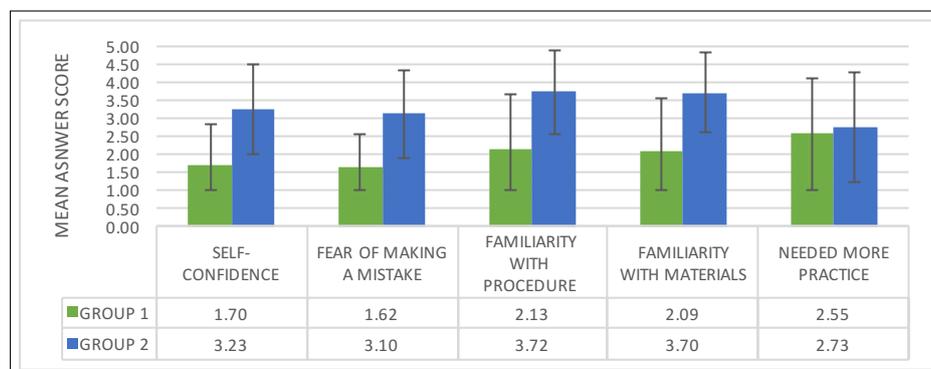


Figure 2: Comparison of mean answer scores from group 1 and group 2.

**Results:** The survey was filled out by 41 participants. The results showed statistically higher mean answer scores in group 2. Group 2 had statistically higher self-confidence ( $p < 0.001$ ), reduced fear of mistake ( $p < 0.001$ ), enhanced familiarity with the procedure ( $p < 0.001$ ) and materials ( $p < 0.001$ ). Both groups were indecisive on whether or not more practice on the models would improve their first procedure of PS on the patient ( $p = 0.51$ ) (Fig. 1).

**Discussion:** According to our results, more practice of PS in CSL significantly lifts student's self-confidence, enhances familiarity with the procedure and materials and decreases students fear of a mistake during the procedure. Participants agreed that they have enough possibilities for practice in CSL before performing PS on the patients. In the future, students should be offered also a possibility of a structured PS learning in a clinical environment after the practice in CSL in order to gain more confidence and dexterity.

**Conclusion:** The repetitive practice on manikins proved to be beneficial for students' first encounter with PS in clinical environment. The limited time students spend in the clinical environment can be used more effectively as students are already familiar with materials and procedure of PS.





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## Youtube Videos in Medical Education at the Medical University Hospital Graz

Medical University of Graz

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### Background:

The vast and easy access to medical videos on Youtube added a huge value to free medical education. However, only a few studies have analyzed the role of medical videos on Youtube for surgeons, physicians and medical students. Aim of this survey was to analyze how commonly Youtube videos are used among physicians, surgeons and medical students at the Medical University Hospital Graz.

### Methods:

We conducted this survey between January and March 2017 at the Medical University Graz, Graz, Austria. On routine weekdays physicians and surgeons at the Medical University Hospital Graz were asked to answer the following 4 questions: In what profession do you work? How old are you? Have you ever watched a Youtube video for professional reasons (e.g. to prepare for a procedure or examination technique)? If so, was it usefully? The sex of the respondent was also noted. Third year medical students were asked during a lecture whether they have been shown a Youtube video for teaching purposes during a lecture before and whether they have watched a Youtube video for study purposes e.g. while preparing for an exam.

### Results:

A total of 73 physicians or surgeons were asked to contribute to this survey, of which 56 (76.1%) answered the survey. Of these 56 respondents 36 were male, (64.3%) and 20 were female (35.7%). 28 (50%) worked at the department of surgery and 24 (42.9%) worked at the department for internal medicine. 2 respondents (3.6%) worked as anesthesiologists and 1 (1.8%) worked as a general physician.

50 out of 56 (89.3%) indicated to have watched a Youtube video for professional reasons, of which 46 (92%) indicated that the video was helpful.

Of the 57 medical students asked, 50 (87.7%) indicated that they have been shown a Youtube video during a lecture in medical school and 52 out of 57 (91.2%) indicated that they have watched a Youtube video at home to prepare for an exam.

Physicians	n	Students	n
asked	73	asked	57
participated	56 (76.1%)	participated	57 (100%)
Surgery	28 (50%)		
Internal medicine	24 (42.9%)	saw a Youtube video in lecture	50 (87.7%)
other	3 (5.4%)		
female	20 (35.7%)		
male	36 (64.3%)		
watched a Youtube video		watched a Youtube video to study	
yes	50 (89.3%)	yes	52 (91.2%)
no	6 (10.7%)	no	5 (8.8%)
was helpful			
yes	46 (92%)		
no	4 (8%)		

### Discussion:

The vast majority of physicians, surgeons and medical students indicated that they have watched a Youtube video for medical purposes and that it was helpful. Our results support previous findings, that medical videos on Youtube are an established and important tool in medical education and Youtube represents a rich educational resource in medicine.

### Conclusion:

Youtube videos are an important source of information for medical students and physicians, thus attention should be paid on the quality of these videos.

## Poster 19

**Youtube Videos in Medical Education at the Medical University Hospital Graz**

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**Background:** The vast and easy access to medical videos on Youtube added a huge value to free medical education. However, only a few studies have analyzed the role of medical videos on Youtube for surgeons, physicians and medical students. Aim of this survey was to analyze how commonly Youtube videos are used among physicians, surgeons and medical students at the Medical University Hospital Graz.

**Methods:** We conducted this survey between January and March 2017 at the Medical University Graz, Graz, Austria. On routine weekdays physicians and surgeons at the Medical University Hospital Graz were asked to answer the following 4 questions: In what profession do you work? How old are you? Have you ever watched a Youtube video for professional reasons (e.g. to prepare for a procedure or examination technique)? If so, was it usefully? The sex of the respondent was also noted. Third year medical students were asked during a lecture whether they have been shown a Youtube video for teaching purposes during a lecture before and whether they have watched a Youtube video for study purposes e.g. while preparing for an exam.

**Results:** A total of 73 physicians or surgeons were asked to contribute to this survey, of which 56 (76.1%) answered the survey. Of these 56 respondents 36 were male, (64.3%) and 20 were female (20%). 28 (50%) worked at the department of surgery and 24 (42.9%) worked at the department for internal medicine. 2 respondents (3.6%) worked as anesthesiologists and 1 (1.8%) worked as a general physician.

50 out of 56 (89.3%) indicated to have watched a Youtube video for professional reasons, of which 46 (92%) indicated that the video was helpful.

Of the 57 medical students asked, 50 (87.7%) indicated that they have been shown a Youtube video during a lecture in medical school and 52 out of 57 (91.2%) indicated that they have watched a Youtube video at home to prepare for an exam. →

**Conclusion:** The vast majority of physicians, surgeons and medical students indicated that they have watched a Youtube video for medical purposes and that it was helpful. Our results support previous findings, that medical videos on Youtube are an established and important tool in medical education and Youtube represents a rich educational resource in medicine.



**Feedback Quality, an Important Ingredient of the Educational Management Recipe**

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Motto: "The information is feedback only when used to alter the gap between the actual level of performance and the reference level" (Sadler, 1987; Hovnes et al, 2012)

**INTRODUCTION**

An exploratory study was performed, aimed at identifying educational interventions to bridge the gap between the increasing number of tutors for simulation-based medical education (SBME) and the reduced availability of formal training for them.

Starting point was Van de Rider's (2008) definition of feedback in clinical education: "specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance".

Three convergent questions were investigated:

1. How can the new generation of tutors obtain necessary information regarding performance standards for tutorship?
2. What are the most relevant educational mechanisms involving both tutors and teachers which improve knowledge management?
3. What are the most important features and best practices which support tutor and teacher's performance in SBME?

**METHODOLOGY**

1) One-to-one and focus groups informal-conversational interviews, with both teachers and tutors, were performed. The original study, initiated in 2011, had a broader aim in connexion with knowledge transfer processes in medical education. Additionally, the number of hours for workshops/seminars dedicated to creating and updating the theoretical knowledge and teaching ability of the tutors was analysed, in connexion with the number of the participants.

2) Direct observations and conversational interviews initiated in 2013.

3) Results were obtained through fixed-response interviews with different groups of tutors in SBME (2013). 152 tutors participants at SBME workshops were asked to rank the 12 best practices and features proposed by McGagie, Isseberg, Petrusa and Scalese (2010), with the most important in the first position.

**CONCLUSIONS**

- The actual educational structure of the Romanian University system can not offer to teachers and tutors the necessary support for effective participation in tutorship activities. In this respect, a better management of the knowledge repository, which should be created with and for tutors and leading teachers, is seen as a feasible and durable solution.
- Both teachers and tutors consider assessment FOR learning (i.e. formative) and feedback as *sine qua non* methods for learning quality improvement.
- A variety of time effective methods, which must be found, tested and if successful implemented, will be needed. This must be done by embedding teaching activities with research for science & education.
- Dedicated research activities are needed to initiate and develop a living educational mechanism for collecting, selecting, processing, storing, and distributing dedicated knowledge, for both teachers and tutors.

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**Results and Discussion**

R1. Collected data have confirmed the positive trend of the tutors acting in VADA (post e-medical project's closure) and a decreasing value of the training hours/tutor. This creates an increasing challenge for tutors, regarding their needs to find trusted information about performance standards (Figure1).

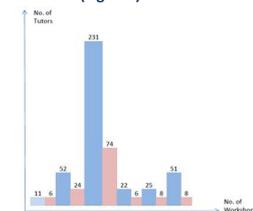


Figure1. Diagram representing the evolution of the tutor's number and specific workshops/seminars' hours dedicated to the tutor's teaching knowledge and skills abilities development

R2. The lack of "officially" allocated hours for tutoring in the Romanian universities, can barely offer the necessary time to the teachers for organising workshops and seminars for tutors' training.

R3. The lack of specific knowledge repository was considered by tutors to be "an important barrier" against their theoretical formation, as well as a major obstacle to the knowledge transfer from one generation to another, within collaborative networks.

R4. Trusted information are offered to tutors almost only by the leading teacher, however the "knowledge repository" and "tutors networks" are needed.

R5. However, there is a list of the competencies developed by all tutors during the tutorship activity in VADA, there is a lack of information regarding performance standards addressed to them.

R6. A strong majority of the teachers (72%) have agreed that efficient learning is expected to occur when medical educators classify the knowledge structure of learning objectives, match them with the appropriate learning process, and fit them with the appropriate instructional methods.

R7. Teachers need to play the most important role in knowledge creation, thus participating to the university's intellectual capital development. However, the existence of an evidence-based education methods and trusted information repository for teaching, allocated to the educational knowledge management system of a university is seen to be the most effective way to making their work more efficient.

R8. Feedback was the first of the 12 best practices and features for SBEM teachers and tutors as proposed by McGagie, Isseberg, Petrusa and Scalese (2010) ranked by SBME tutors in UMFVBT, (Table 1)

No.	Feature/best practice	Well established knowledge
1.	Feedback	Formative feedback has an essential role in SBME, since its purpose is to improve trainee, not to present summative/conclusive judgments.
2.	Deliberate practice (DP)	DP is used to shape, refine and maintain trainee knowledge skills and attitudes.
3.	Skill acquisition and maintenance (SAM)	Since some of the significant skills decay after 3 months (Lammers, 2008), SAM is the most common learning objective of SBME.
4.	Curriculum integration	SBME activity must be planned, scheduled, required and carried out thoughtfully in the context of a university medical curriculum.
5.	Mastery learning (ML)	The goal of ML is to ensure that all learners accomplish all educational objectives with little, or no outcome variation.
6.	Educational context (EC)	EC should resemble the situation in which the created and assessed competence will actually have to be used.
7.	Outcome measurement (OM)	OM is one of the greatest challenge facing SBEM. Both the haptic sensors and the humans observations are potential sources of bias.
8.	Transfer to practice (TP)	TP demonstrates that skills acquired generalise to real clinical settings
9.	Team training (TT)	TT should aim at avoiding the creation of ineffective team work in future clinical practice of the trainees.
10.	High-stakes testing (HST)	HST includes knowledge/skills summative evaluations usually done using objective structured clinical examinations-OSCE
11.	Tutor/teacher training (T/T)	T/T is seen as a great unmet need for a uniform mechanism to educate and certify simulation instructors for health care
12.	Simulation fidelity	Education goals must dictate the decisions about the level of simulation technology used for teaching (not viceversa).

Table 1. The 12 best practices and features of the SBEM teachers ranked by UMFVBT tutors

Poster 20

**Feedback quality, an important ingredient of the educational management recipe**

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The consolidated efforts of our University to effectively introduce the most appropriate student-centred educational methods have revealed many educational areas having an enormous potential of intervention. One of these areas is the learning assessment.

Prior to Graz Conference 2012, held in Timisoara, almost all the learning assessment in UMFVBT have been conducted in a classical manner, as a reflection of the teacher-centred educational culture followed since 1946, when the University was born. Oral and written exams have often tested mainly the student's capacity for memorising the course notes, rather than the ability to integrate their knowledge during a complex situation.

The educational efforts of both teachers and students were reflected by a centralised situation of the semestrial summative evaluations marks. Those marks have represented the most important criteria taken into consideration for the learning process analysis done by the University managerial staff. All of the managerial decisions were introduced at that time in a reactive manner, aiming to correct and/or improve specific educational outcomes, late, after the end of learning processes.

During the last six years, a lot of our teachers and tutors have been involved in various seminars and workshops addressing the student-centred educational paradigm. Many of them have successfully introduced various formative, rather than summative methods to assess the learning process. As a consequence, there was a real need for educational management to become more proactive and thus a significant change process has been initiated.

Such a complex educational management change process is characterised by several critical factors such as top management support, perceived utility, formative and summative assessment, teacher training and curriculum description. We have ascertained that among these factors, the formative assessment is of a paramount importance.

Following a case study analysis, the related results are presented two-folded: as supporting the need to include students' understanding of the feedback information in the analysis of formative assessment, as valid remarks of Sadler's (2010), and as possible ways for overcoming the existing learning barriers to a valuable feedback.

The discussion proposed emphasizes both the fact that positive effects of feedback are not always the case, since more than one-third of the effects indicated a negative impact of feedback on learning (Kluger and DeNisi, 1996) and the importance of a flexible

strategy for introducing structural changes in medical education as a prerequisite of a successful organizational change process.

Based on some quantitative metrics used for educational management analysis the authors formulate conclusions which emphasise the need that educational changing process to be tightly connected to research in educational science and service science to better address knowledge creation and innovation in medical education.

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Medical University of Graz

## The Notfallseminar of the Medizinercorps Graz: Implementation of a specialised education programme in prehospital emergency medicine at the Medical University of Graz

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### BACKGROUND

The **Medizinercorps** was founded in 1890 due to a shortage of emergency physicians in Graz (Austria). Since then, medical students were recruited and trained in prehospital emergency medicine to improve prehospital medical care in a city with 320.000 inhabitants (2017). After having completed an extensive education programme, the so-called **NKI-RM** (rescue medic with special emergency skills) is then enabled to perform diagnostic procedures, as well as emergency and other medical interventions. The **NKI-RM** programme is covered under the Austrian Act on Ambulance Service Members (2002). **NKI-RM** are staffing two emergency ambulance vehicles that have remained to be an integral part of a "Dual emergency medical care system", which is unique in Graz.

The **Notfallseminar** is an emergency tutorial organized by volunteers within the **Medizinercorps** and was offered on a regular basis since 1959 (approximately once every two years). The up-to-four-days tutorial include theoretical and practical course contents in prehospital emergency medicine and is part of the abovementioned **NKI-RM** training programme. Traditionally, exclusively medical students which were members of the **Medizinercorps** were participating, but nowadays the **Notfallseminar** is open to all interested medical students and will be implemented into the course programme of the **Medical University of Graz**.

MEDIZINERCORPS



Fig 1. Emergency ambulance vehicles (1912)



Fig 2. Emergency ambulance vehicles (2016)



Fig 3. Medizinercorps Graz (2015)

### METHODS

Within the past few years, the **NKI-RM** training programme has been extended and optimized. A curriculum, describing the three pillars of the education programme in detail, has recently been defined. The modalities of this programme were specified and empirically evaluated. Motivation and characteristics of the last year's participants of the **Notfallseminar** were evaluated by using a questionnaire.

### RESULTS

Each year, approximately 15 medical students complete their **NKI-RM** training programme. The programme includes training courses and clinical electives by the **Medical University of Graz**, accredited training hospitals, the **Red Cross** and special workshops and manikin-training by the **Medizinercorps** including the **Notfallseminar**. The **Medizinercorps-specific** part offers 1:1 apprenticeship, characterized by peer-assisted-learning and bedside-teaching for several month. Altogether, the programme has been extended to more than 6000 hours, during which the **NKI-RM-candidate** already gains practical experience. The **Notfallseminar** is part of the **NKI-RM** programme and open for every medical students with interest in prehospital medicine. In average, approximately 60 students are participating at the **Notfallseminar**. 80% of the participants are volunteering in ambulance services; only 50% of them are attending the **NKI-RM** training programme. Approximately 10% of the participants are students from external universities in Austria and Germany.

NOTFALLSEMINAR



Fig 4. Advanced Life Support Training



Fig 5. Umbilical Vein Catheterization Training



Fig 6. Advanced Trauma Life Support Training

### CONCLUSIONS

After completing a special programme in emergency medicine, medical students perform life-saving emergency procedures during their voluntary service as **NKI-RM** staffing emergency ambulance vehicles of the **Austrian Red Cross** in Graz. In the presence of unstable vital signs in prehospital emergency patients, advanced life support is commenced immediately until an emergency physician arrives on scene. One part of the extensive training programme is the **Notfallseminar** of the **Medizinercorps**, which is now open for interested medical students and will be implemented as elective course at the **Medical University of Graz**.

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## Poster 21

**The “Notfallseminar” of the “Medizinerkorps Graz”: Implementation of a specialised education programme in prehospital emergency medicine at the Medical University of Graz**Bernhard Schwabberger<sup>1,2</sup>, Anna-Sophie Eberl<sup>1</sup>, Martin Horn<sup>1</sup>, Gerhard Prause<sup>3</sup><sup>1</sup>Medizinerkorps Graz, Austrian Red Cross Federal Association Styria, Graz, Austria<sup>2</sup> Department of Pediatrics, Medical University of Graz, Graz, Austria<sup>3</sup> Department of Anaesthesiology, Emergency and Intensive Care Medicine, Medical University of Graz, Graz, Austriabernhard.schwabberger@medunigraz.at  
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**Background:** The Medizinerkorps was founded in 1890 due to a shortage of emergency physicians in Graz (Austria). Since then, medical students were recruited and trained in prehospital emergency medicine to improve prehospital medical care in city with 320.000 inhabitants (2017). After having completed an extensive education programme, the so-called NKI-RM (rescue medic with special emergency skills) is then enabled to perform diagnostic procedures, as well as emergency and other medical interventions. The NKI-RM programme is covered under the Austrian Act on Ambulance Service Members (2002). NKI-RM are staffing two emergency ambulance vehicles that have remained to be an integral part of a “Dual emergency medical care system”, which is unique in Graz.

The Notfallseminar is an emergency tutorial organized by volunteers within the Medizinerkorps and was offered on a regular basis since 1959 (approximately once every two years). The four-day tutorial include theoretical and practical course contents in prehospital emergency medicine and is part of the abovementioned NKI-RM training programme. Traditionally, exclusively medical students which were members of the Medizinerkorps were participating, but nowadays the Notfallseminar is open to all interested medical students and will be implemented into the course programme of the Medical University of Graz.

**Methods:** Within the past few years, the NKI-RM training programme has been extended and optimized. A curriculum, describing the three pillars of the education programme in detail, has recently been defined. The modalities of this programme were specified and empirically evaluated. Motivation and characteristics of the last year’s participants of the Notfallseminar were evaluated by using a questionnaire.

**Results:** Each year, approximately 15 medical students complete their NKI-RM training programme. The programme includes training courses and clinical electives by the Medical University of Graz, accredited training hospitals, the Red Cross and special workshops and manikin-training by the Medizinerkorps including the Notfallseminar. The Medizinerkorps-specific part offers 1:1 apprenticeship, characterized by peer-assisted-learning and bedside-teaching for several month. Altogether, the programme

has been extended to more than 6000 hours, during which the NKI-RM-candidate already gains practical experience.

The Notfallseminar is part of the NKI-RM programme and open for every medical students with interest in prehospital medicine. In average, approximately 60 students are participating at the Notfallseminar. 80% of the participants are volunteering in ambulance services; only 50% of them are attending the NKI-RM training programme. Approximately 10% of the participants are students from external universities in Austria and Germany.

**Conclusion:** After completing a special programme in emergency medicine, medical students perform life-saving emergency procedures during their voluntary service as NKI-RM staffing emergency ambulance vehicles of the Austrian Red Cross in Graz. In the presence of unstable vital signs in prehospital emergency patients, advanced life support is commenced immediately until an emergency physician arrives on scene. One part of the extensive training programme is the Notfallseminar of the Mediziner-corps, which is now open for interested medical students and will be implemented as elective course at the Medical University of Graz.



## Long term diagnostic thinking outcomes with the usage of virtual patients

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### Introduction

Virtual patients (VP) are defined as interactive computer simulations of real-life clinical scenarios for the purpose of medical training, education, or evaluation. Examples of VP give students a unique opportunity to practice and improve their clinical reasoning, while offering them the motivation for learning as well.

Our conducted research sought to determine which method: static paper-based examples or VP are more effective for the improvement of clinical thinking during problem based learning (PBL) classes. Current studies indicate VP positively impact on learning outcomes and hypothesis have been made this learning method improves clinical reasoning. We explore in this study the improvement of diagnostic thinking in a long term (academic year 2015/16).

### Methods

There were thirty-three 3rd year medical students at the beginning of their clinical education who participated in the study. They were randomly split into two groups - one group was using VP during their PBL-classes and the other group was using paper-based PBL (p-PBL) cases. At the beginning, at the end of their semester and at the end of the academic year students were given the Diagnostic Thinking Inventory questionnaire (DTI). We measured the improvement of DTI measurement components, the "Flexibility in thinking" and "Memory structure", which indicate an improvement in clinical reasoning.

### Results

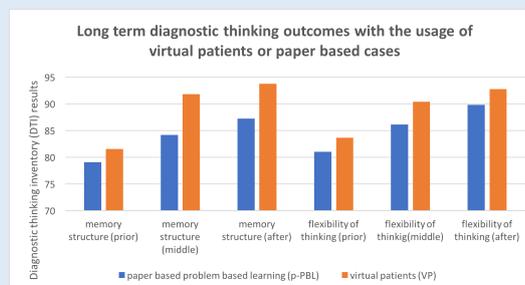
Our data show that both groups have improved during the study year in clinical thinking. The students using VP had a mean score of 83.64 in 1st measurement (prior), 90,41 in 2nd (middle) and 92,75 in 3rd (after) in "Flexibility of thinking", as depicted in Figure 1, and 81.53 (prior), 91,83 (middle) and 93,75 (after) in "Memory Structure". In the control group, using p-PBL, the mean improvement was slightly lower: 81 (prior), 86,125 (middle) and 89,824 (after) in "Flexibility of thinking" and 79.05 (prior), 84,18 (middle) and 87,235 (after) in "Memory Structure".

### Discussion

It has been shown that the usage of VP in our study did not have a significant impact on students' thinking as students progressed in clinical reasoning regardless of the group (VP or p-PBL). However, our study shows slightly greater improvement in "Memory Structure" when using VP compared to p-PBL cases in a long term. While we were expecting students to improve in both fields, the more powerful, but not statistically significant increase in "Memory Structure" when using VP is still a beneficial outcome for students.

### Conclusions

The study shows that the usage of static PBL cases and VP has no significant difference in the progress of undergraduate students in the diagnostic thinking. Possible reasons for our results are: i) students are too little experienced in the clinic field to benefit from VP usage, ii) VP and static PBL cases are equivalent training methods for the improvement of clinical reasoning. Therefore, in order to increase clinical reasoning among medical students using VP in a long term is a feasible option.



## Poster 22

**Long term diagnostic thinking outcomes with the usage of virtual patients**

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**Discussion:** It has been shown that the usage of VP in our study did not have a significant impact on students’ thinking as students progressed in clinical reasoning regardless of the group (VP or p-PBL). However, our study shows slightly greater improvement in “Memory Structure” when using VP compared to p-PBL cases in a long term. While we were expecting students to improve in both fields, the more powerful, but not statistically significant increase in “Memory Structure” when using VP is still a beneficial outcome for students. →

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# Certified versus non-certified advanced life support training and self-assessed provider performance



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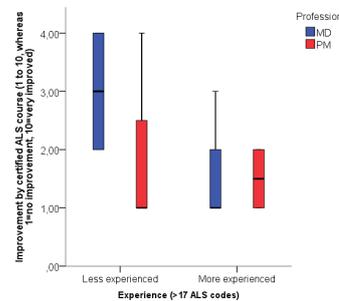
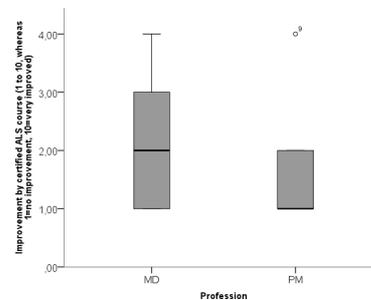
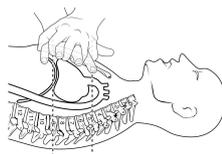
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**Introduction:** Currently professional training in advanced life support (ALS) is most commonly provided by centres certified by the European Resuscitation Council (ERC) or the American Heart Association. Nevertheless, private and public institutions offer similar non-certified ALS trainings. We aimed to compare the perceived training of individuals in a private institution and with a later completed ERC certified ALS course.

**Methods:** We asked individuals (selected on random basis) who perform ALS as part of their professional routine or voluntary work at the emergency medical service in Graz for completing a questionnaire. The question related to self-assessed difference in performance and the learning of new skills when additionally completing an ERC certified ALS course after equivalent non-certified ALS course. Participants had to provide written informed consent for anonymous data sharing.

	Median	Q25	Q75
<b>Table 1 Baseline:</b>			
Age	29	24.5	30.5
Female (%)	30		
Level of training	50% MD, 50% paramedic + currently enrolled in a medical school		
Self assessment in the ability to perform guideline based ALS (1-10, poor to very good)	9.5	9	10
Number of Resuscitations last year	4	3.25	8.5
Total number of performed Resuscitations	17.5	10.5	27.5
Number of non-certified ALS trainings completed	4	3	4.75
Number of certified ALS trainings completed	1	1	1
Did the certified ALS course improve your performance (1-10, poor to very much)	1.5	1	2.75



**Results:** We included 10 participants, 30% females, 60% within 2 years after completion of medical school. Six of ten (60%) reported no difference in self-assessed performance or skills after completing an ERC certified ALS course.

**Conclusion:** Our studies raises question of certified vs. non-certified training in ALS for moderately experienced providers. Future investigations with larger sample sizes should focus on differences in content, teaching material and objectively assessed performance between certified and non-certified ALS training facilities.

\* If listed as medical student this implies active participation in a ambulance service that provides ALS

Context: Existing full text publications in the field:

<sup>1</sup> Nolan, Soar, Zideman et al. (2010) European Resuscitation Guidelines for Resuscitation 2010. Resuscitation 81:1219-1276 (new guidelines from 2015 were published after this study)  
 Image courtesy by wikimedia commons, under CC0 license



Medizinische Universität Graz

## Poster 23

**Certified versus non-certified advanced life support training and self-assessed provider performance**

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**Introduction:** Currently professional training in advanced life support (ALS) is most commonly provided by centres certified by the European resuscitation council (ERC) or the American heart association. Nevertheless, private and public institutions offer similar non-certified ALS trainings. We aimed to compare the perceived training of individuals in a private institution and with a later completed ERC certified ALS course.

**Methods:** We asked individuals (selected on random basis) who perform ALS as part of their professional routine or voluntary work at the emergency medical service in Graz for completing a questionnaire. The question related to self-assessed difference in performance and the learning of new skills when additionally completing an ERC certified ALS course after equivalent non-certified ALS course. Participants had to provide written informed consent for anonymous data sharing.

**Results:** We included 10 participants, 30% females, 60% within 2 years after completion of medical school. Six of ten (60%) reported no difference in self-assessed performance or skills after completing an ERC certified ALS course.

**Conclusions:** Our studies raises question of certified vs. non-certified training in ALS for moderately experienced providers. Future investigations with larger sample sizes should focus on differences in content, teaching material and objectively assessed performance between certified and non-certified ALS training facilities.

# The first Full-Scale Care Process Simulation Training Course for the Management of Severe Burns



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Medical University of Graz



## Background

Training and simulation is key to the continuous medical education.



## M&M

We developed a four-day Simulation Training Program based on Miller's Pyramid.



## Results

All diagnostic, therapeutic, and logistic decisions will be simulated and trained, starting at the initial patient assessment and management at the emergency department, critical care transfer to the intensive care unit, surgical care in the operating room, to the post-operative management on the ward.

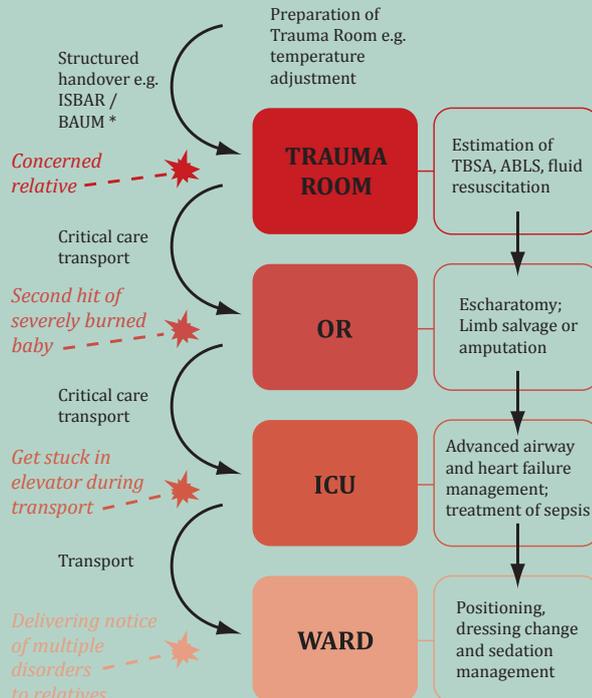


## Conclusion

By improving technical and soft skills during the training, we aim to enhance physician and student performance and patient outcome.



A emergency room; B operating theatre; C ICU; D normal ward



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Example of FSCPS in the first Graz Simulation course for the Management of severe Burns.

\*ISBAR/BAUM/SAFE : handover performance tools/ algorithm for structured medical handovers

Poster 24

**The first Full-Scale Care Process Simulation Training Course for the Management of Severe Burns**Raimund Winter<sup>1</sup>, Thomas Wegscheider<sup>2,3</sup>, Frederike Marie Josefine Reischies<sup>1</sup>, Alexandru-Cristian Tuca<sup>1</sup>, Paul Wurzer<sup>1</sup>, Lars-Peter Kamolz<sup>1,4</sup><sup>1</sup> Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, Graz, Austria<sup>2</sup> Division of Special Anesthesiology, Pain and Intensive Care Medicine, Department of Anesthesiology and Intensive Care Medicine, Graz, Austria<sup>3</sup> Medical Simulation and Training Center Styria, Graz, Austria<sup>4</sup> Research Unit for Safety in Health, Medical University of Graz, Graz, Austria

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**Introduction:** Training and simulation is key to the continuous medical education of health care professionals. Proper education is required to increase physicians' performance resulting in improved patients' outcomes. To improve the treatment of burns, we aimed to establish an educational tool to simulate the acute care management of the severely injured.

**Methods:** With a size of 800 m<sup>2</sup>, The Medical Simulation and Training Center Styria offers, as one of the leading simulation and training facilities for healthcare professionals in South- and Central Europe, to simulate the management of severely burned patients. This environment is capable of mimicking acute and long-term burn care, as well as treatment procedures using a full-scale process simulation with high fidelity trainers.

**Results:** We developed a four-day burn injury training program, which simulates the entire process of burn patient management. Within The First Graz Simulation Course for the Management of Severe Burns, all diagnostic, therapeutic, and logistic decisions will be simulated and trained, starting at the initial patient assessment and management at the emergency department, critical care transfer to the intensive care unit, surgical care in the operating room, to the post-operative management on the ward.

**Conclusions:** The First Graz Simulation Course for the Management of Severe Burns could provide education, knowledge, and training for burn care providers. By improving technical and soft skills during the training, we aim to enhance physician performance and patient outcome.

## How does the students' self-directedness in learning evolve through the years of undergraduate medical education?

### Introduction

Self-directed learning (SDL) is the ability of a learner to recognize their learning needs and the capability to initiate and direct their own learning. In order to maintain the required level of competence through their career, medical professionals must develop skills for SDL. It is important for medical students to learn how to direct their own learning prior to graduation in order to ease the transition from structured medical school education towards less structured clinical educational environments. (1,2)

### Methods

All students of the Faculty of Medicine, University of Maribor were invited to participate in the study through the self-rating scale for self-directed learning (SRSSDL) questionnaire. (3) SRSSDL was translated forwards and backwards in the Slovenian language. The preliminary data analysis included undergraduate medical students, from preclinical to clinical levels (years one through six). The Likert scale based questionnaire covered four areas of SDL: awareness, learning strategies, learning activities and evaluation.

### Discussion

There are no significant differences in SDL based on students' gender. Most evident changes in SDL are shown between first and second year students. The adjustment from high school to university teaching methods has a probable interplay in the SDL advancement. In the following years minimal changes occur. Transition to clinical courses results in slightly lower, probably more realistic SDL scores. In later years students successfully adapt to change and become more self-directed. A progress in Awareness and Learning activities domains is evident between year 1 and year 6 students, while Learning skills and Evaluation domains show less notable increase during the undergraduate medical education.

### Conclusions

Data analysis shows student SDL awareness is independent of gender and demonstrates a significant increase in total scores between first and last year medical students. Careful consideration must be given towards the understanding of SDL levels students have across the undergraduate medical curricula. Subsequently, potential opportunities for improvement of SDL should be explored, followed by the implementation of adequate interventions.

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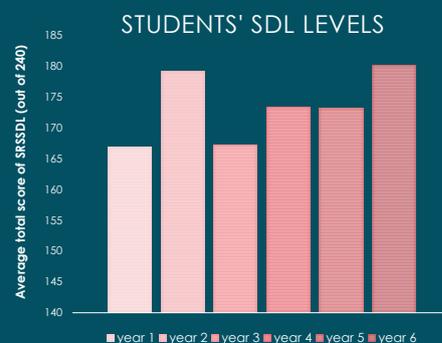
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### Results

Internal scale consistency for SRSSDL was 0.802. An analysis shows SDL does not differ significantly based on gender ( $p=0.396$ ). There was a significant increase in SDL total score between beginning year 1 ( $n=27$ ) and year 6 ( $n=13$ ) students ( $p=0.016$ ). A notable change in SDL between successive years occurs from year 1 to year 2 ( $p=0.28$ ). Between years 1 and 6 there is a statistically significant increase in SRSSDL subscales Awareness ( $p=0.27$ ) and Learning activities ( $p=0.30$ ).

### References

1. Murad MH, Varkey P. Self-directed Learning in Health Professions Education. *Ann Acad Med Singapore*. 2008;37:580-90.
2. Tagawa M. Physician Self-directed Learning and Education. *Kaohsiung J Med Sci*. 2008;24(7):380-5.
3. Williamson SN. Development of a self-rating scale of self-directed learning. *Nurse Res*. 2007;14(2):66-83.



## Poster 25

**How does the students' self-directedness in learning evolve through the years of undergraduate medical education?**Vanja Zamuda<sup>1</sup>, Monika Sobočan<sup>2</sup>, Erika Zelko<sup>3</sup><sup>1</sup>Faculty of Medicine, University of Maribor<sup>2</sup>Centre for medical education, Faculty of Medicine, University of Maribor<sup>3</sup>Faculty of Medicine, University of Maribor, Department of family medicine

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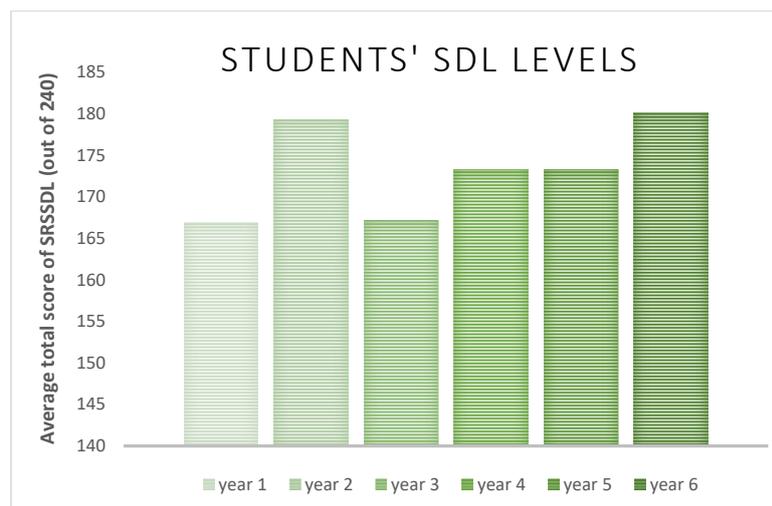
**Introduction:** Self-directed learning (SDL) is the ability of a learner to recognize their learning needs and the capability to initiate and direct their own learning. In order to maintain the required level of competence through their career, medical professionals must develop skills for SDL. It is important for medical students to learn how to direct their own learning prior to graduation in order to ease the transition from structured medical school education towards less structured clinical educational environments. [1,2]

**Methods:** All students of the Faculty of Medicine, University of Maribor were invited to participate in the study through the self-rating scale for self-directed learning (SRSSDL) questionnaire [3]. SRSSDL was translated forwards and backwards in the Slovenian language. The preliminary data analysis included undergraduate medical students, from preclinical to clinical levels (years one through six). The Likert scale based questionnaire covered four areas of SDL: awareness, learning strategies, learning activities and evaluation.

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( $p=0.28$ ). Between years 1 and 6 there is a statistically significant increase in SRSSDL subscales Awareness ( $p=0.27$ ) and Learning activities ( $p=0.30$ ).



**Discussion:** There are no significant differences in SDL based on students' gender. Most evident changes in SDL are shown between first and second year students. The adjustment from high school to university teaching methods has a probable interplay in the SDL advancement. In the following years minimal changes occur. Transition to clinical courses results in slightly lower, probably more realistic SDL scores. In later years students successfully adapt to change and become more self-directed. A progress in Awareness and Learning activities domains is evident between year 1 and year 6 students, while Learning skills and Evaluation domains show less notable increase during the undergraduate medical education.

**Conclusions:** Data analysis shows student SDL awareness is independent of gender and demonstrates a significant increase in total scores between first and last year medical students. Careful consideration must be given towards the understanding of SDL levels students have across the undergraduate medical curricula. Subsequently, potential opportunities for improvement of SDL should be explored, followed by the implementation of adequate interventions.

**References:**

- [1] Murad MH, Varkey P. Self-directed Learning in Health Professions Education. *Ann Acad Med Singapore*. 2008;37:580–90.
- [2] Tagawa M. Physician Self-directed Learning and Education. *Kaohsiung J Med Sci*. 2008;24(7):380–5.
- [3] Williamson SN. Development of a self-rating scale of self-directed learning. *Nurse Res*. 2007;14(2):66–83.



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## **8 Notes**











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