CLINICAL PEER-TEACHING – QUO VADIS?

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INTRODUCTION

- interest in clinical peer-teaching during undergraduate medical programs is PRESENT and has GROWN in recent years
- also at our Faculty of Medicine

PRO

- advocates of clinical peer-teaching believe that peer-teachers and their students share similar knowledge base and learning experience, what is known as "cognitive congruence"
  - this state of agreeing allows the peer-teachers to use language that their learners understand and to explain concepts in an understandable way

Cornwall MG. *Students as teachers: Peer teaching in higher education*. Amsterdam: Centrum Onderzoek Wetenschappelijk Onderwijs 1980.

Yu et al. Medical students-as-teachers: a systematic review of peer-assisted teaching during medical school. Advances in Medical Education and Practice. 2011.

PRO

- peer-teachers and student-learners also share a “social congruence” because of their similar social roles
  - this probably explains why student learners feel more at ease with a peer- or near peer-teacher than with a senior clinician

Schmidt HG, Moust JH. What makes a tutor effective? A structural equations modeling approach to learning in problem-based curricula. *Acad Med*. 1995.

Yu et al. Medical students-as-teachers: a systematic review of peer-assisted teaching during medical school. Advances in Medical Education and Practice. 2011.

FACT OR CONTRA

- objective clarity and consensus on the true effectiveness of clinical peer-teaching and its short- and long-term impacts on students learning outcomes and clinical practice remain **uncertain**

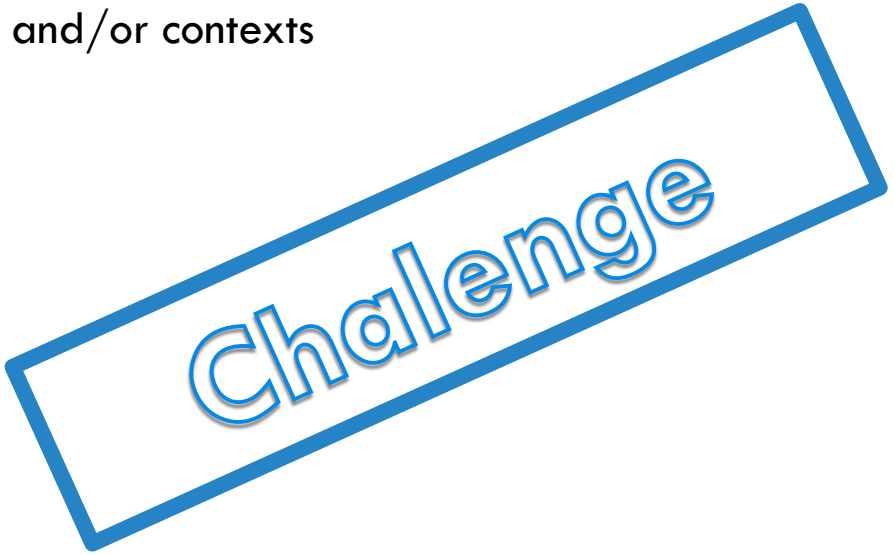
FACT FOR PRO OR CONTRA

- there is **some** evidence available to suggest that participating student-teachers benefit academically and professionally

Bene K, Bergus G. When learners become teachers: a review of peer teaching in medical student education. Fam Med. 2014

FACT FOR PRO OR CONTRA

- clinical peer-teaching in undergraduate medical programs **could be** comparable to conventional teaching
  - especially when practiced in selected topics and/or contexts



STRUCTURE

- **Theory**
- **Mentors**
- **Clinical work**

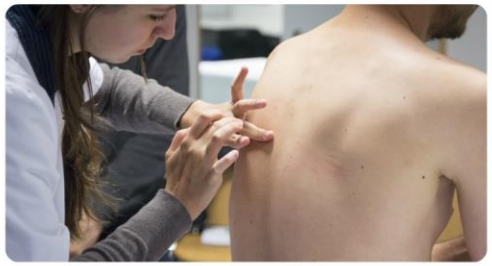
- **Theory**
- Tutors
- **Mentors**
- Skills learning
- Simulations
- Debrifing
- Evaluation
- Research
- Students projects
- Tutors projects
- Mentors projects
- **Clinical work**

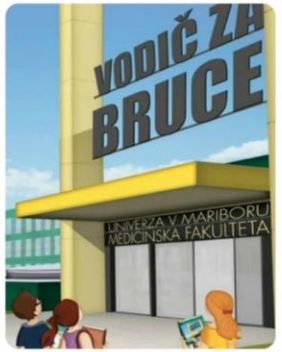
WISH, IDEA, GOAL, REALITY

- „in undergraduate medical education, clinical peer-teaching try to serves as a transparent knowledge sharing that enables medical students to bridge the gap between university student and clinician“

- CLINICIAN - TEACHER - MENTOR - PEER TUTOR - STUDENT

- „working HAND in HAND“

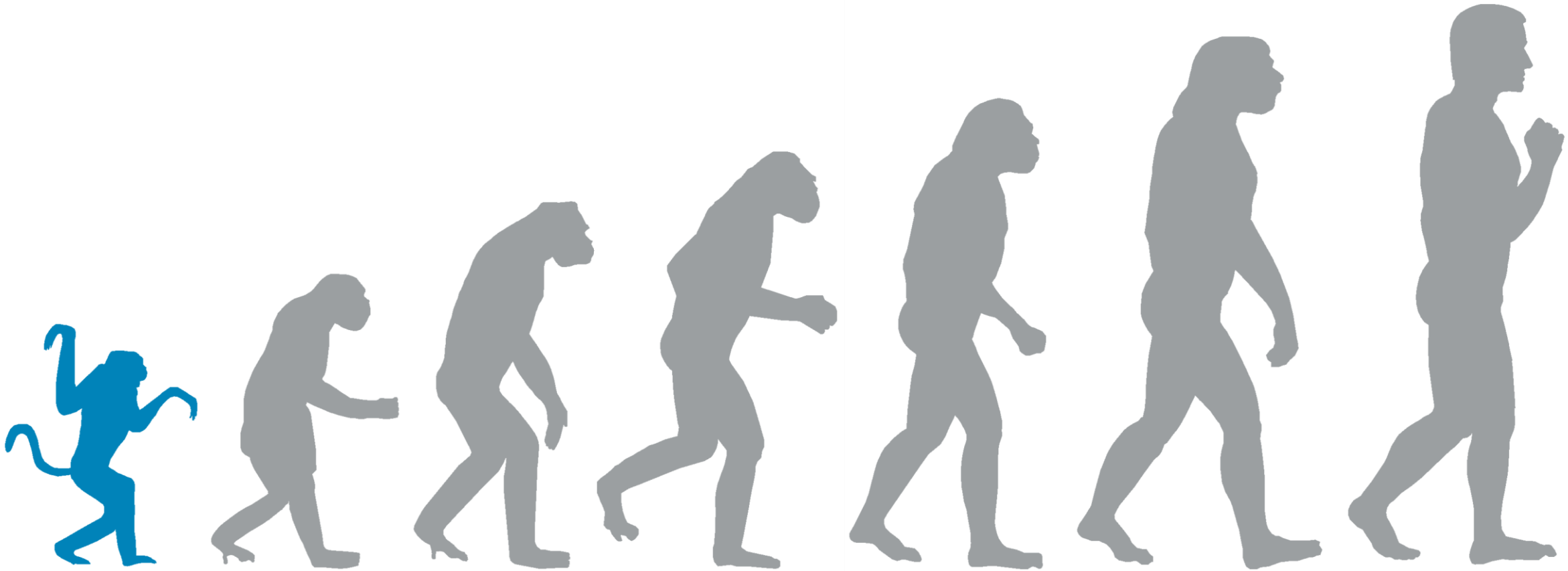




THE EVOLUTION OF CLINICAL SKILS PEER TEACHING

AT THE FACULTY OF MEDICINE, UNIVERSITY OF MARIBOR

Matic Mihevc, MS
Tamara Serdinšek, MD
Assoc. Prof. Sebastjan Bevc, MD, PhD



PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7
2010-2012	2012-2013	2013-2015	2015-2016	2016-2017	2018	2020+?

PHASE 1 (2010-2012)

- Establishment of the Clinical Skills Laboratory and Simulation Centre
- Elective subject *Selected topics and novelties in propaedeutics*

Univerza v Mariboru
Medicinska fakulteta

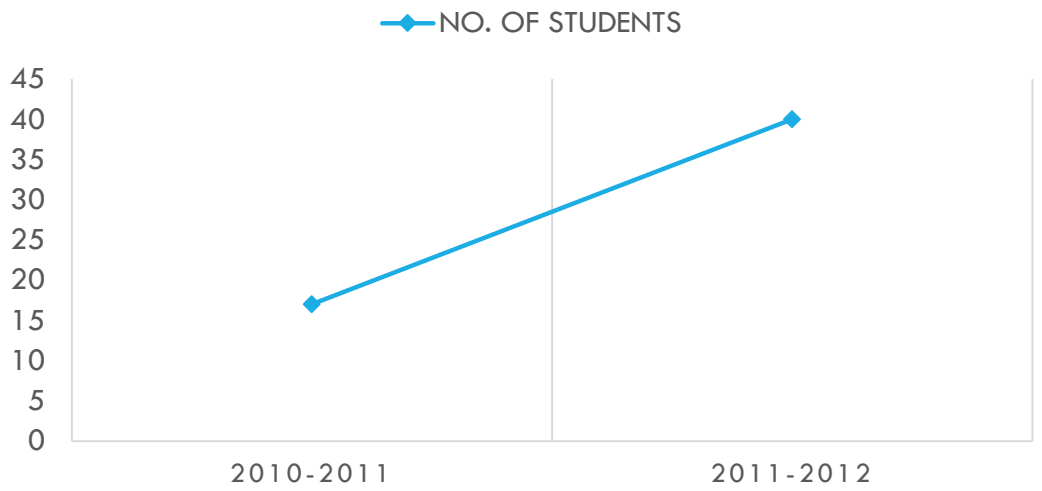
UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION	
Predmet:	Izbrane vsebine in novosti v propedevtiki
Subject Title:	Selected topics and novelties in propedeutics

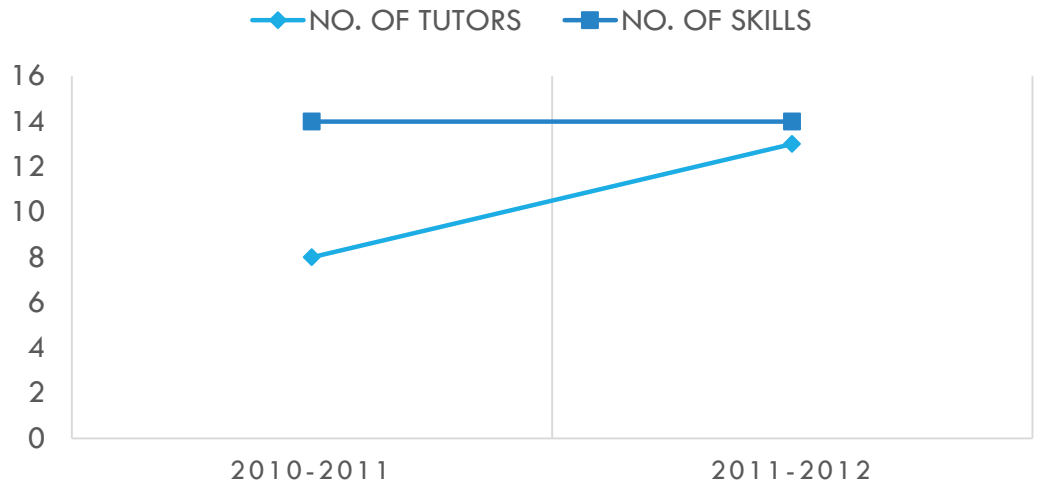
Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
EMŠP Splošna medicina		3	6.

Univerzitetna koda predmeta / University subject code:

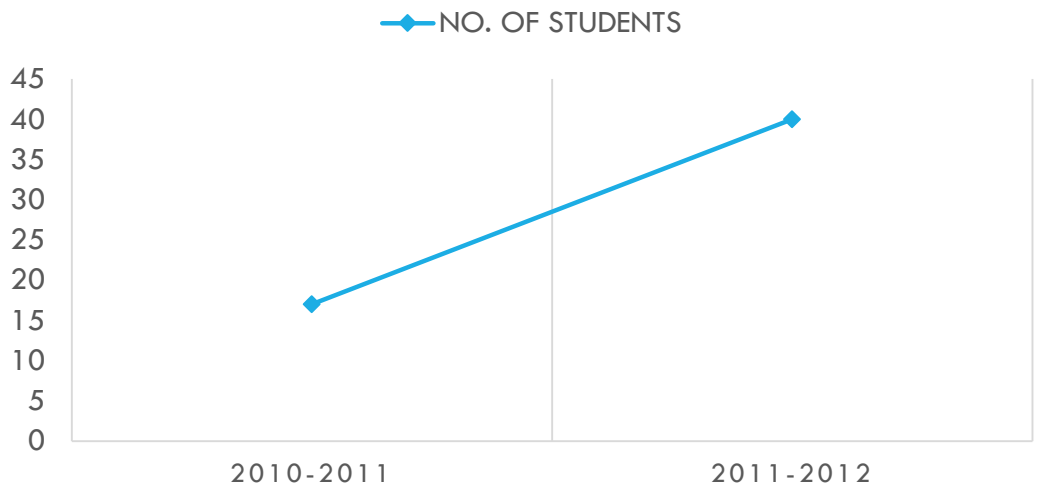
Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Labor work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
	5	46			39	3

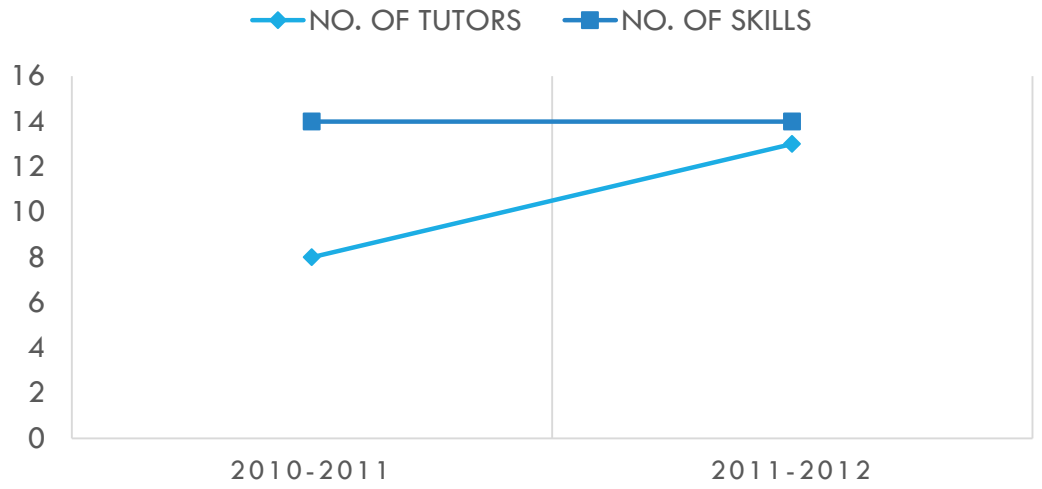
Nosilec predmeta / Lecturer: Izred. prof. dr. Sebastjan Bevc





PHASE 1 (2010-2012)





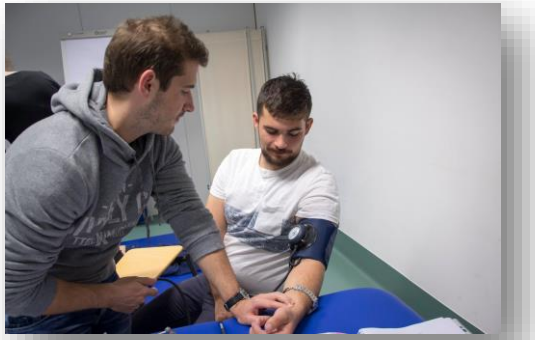
MEDICAL HISTORY

RESPIRATORY SYSTEM

LOCOMOTORY SYSTEM

ABDOMEN

CARDIOVASCULAR SYSTEM



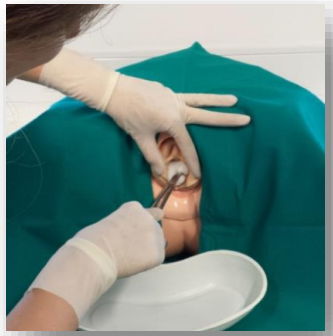
BP MEASUREMENT

VENEPUNCTURE

ABDOMINAL ULTRASOUND

RECTAL EXAMINATION

INFUSION SET-UP

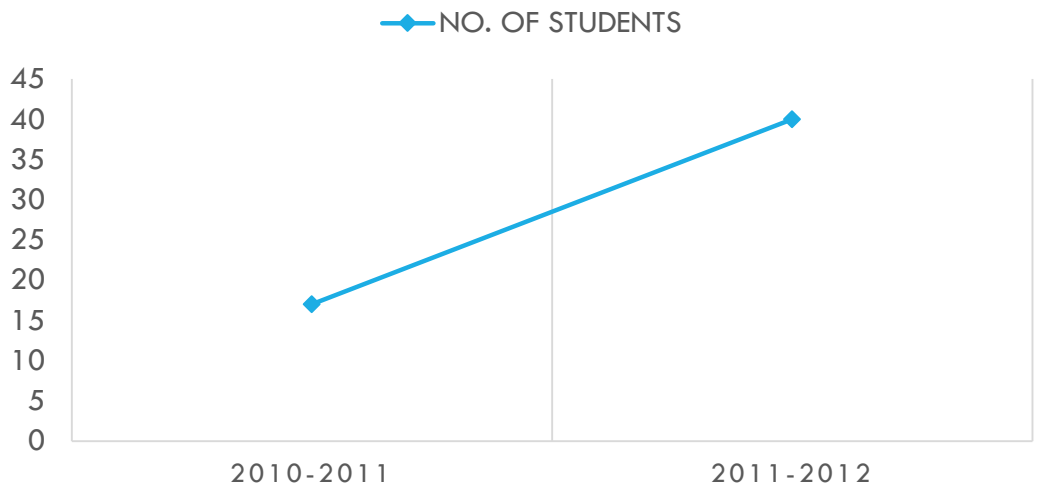


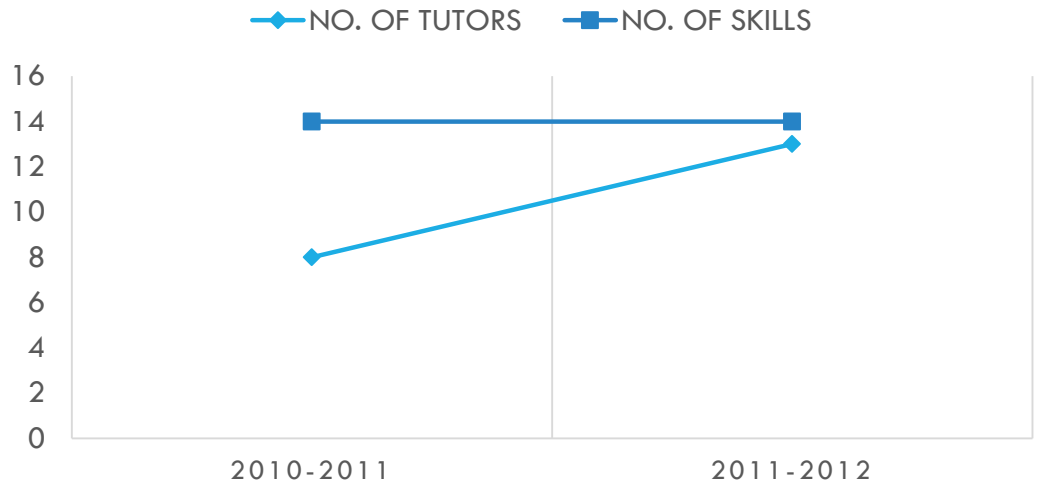
URINARY CATHETERISATION

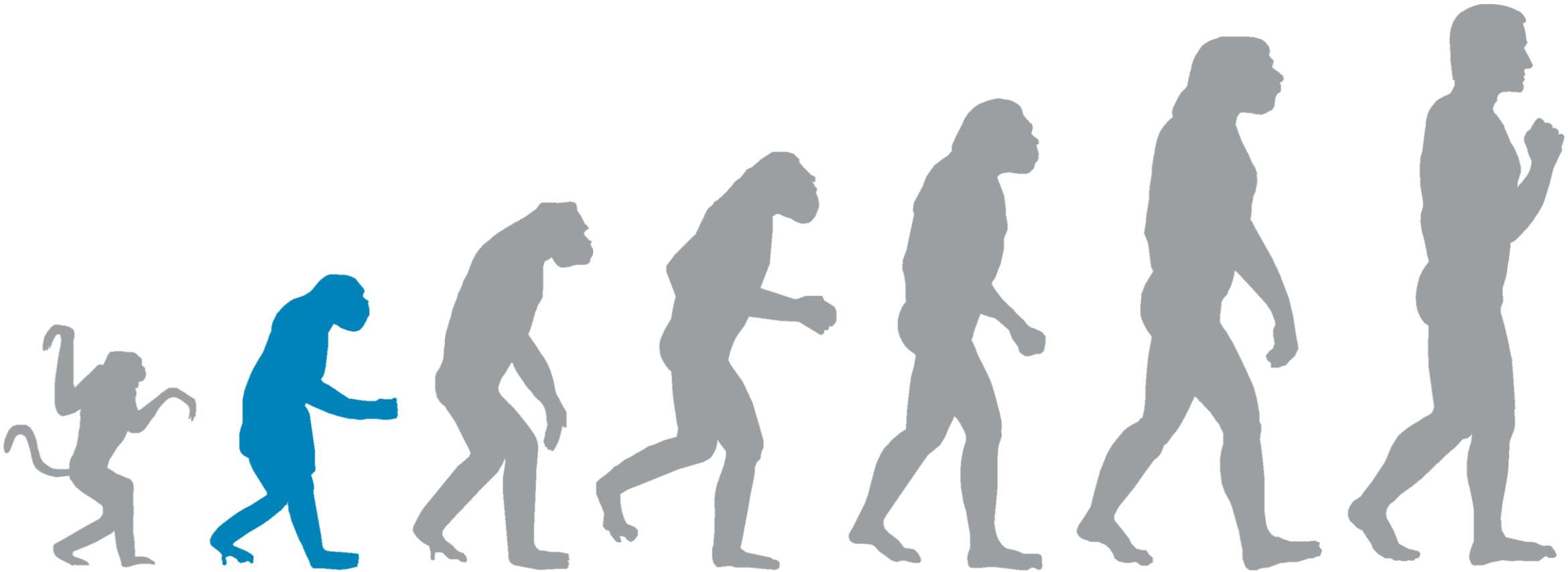
CPR

PATHOLOGIC HEART AND RESPIRATORY SOUNDS

PHASE 1 (2010-2012)







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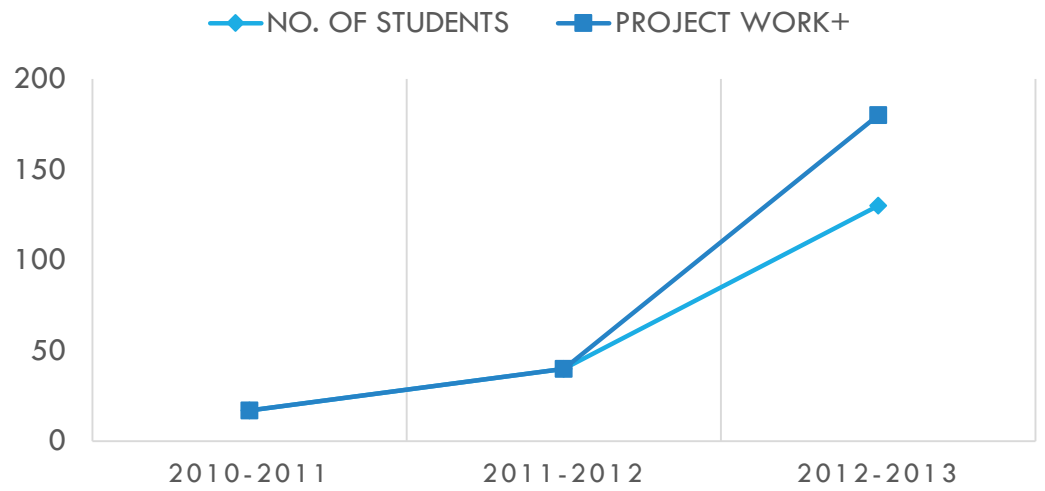
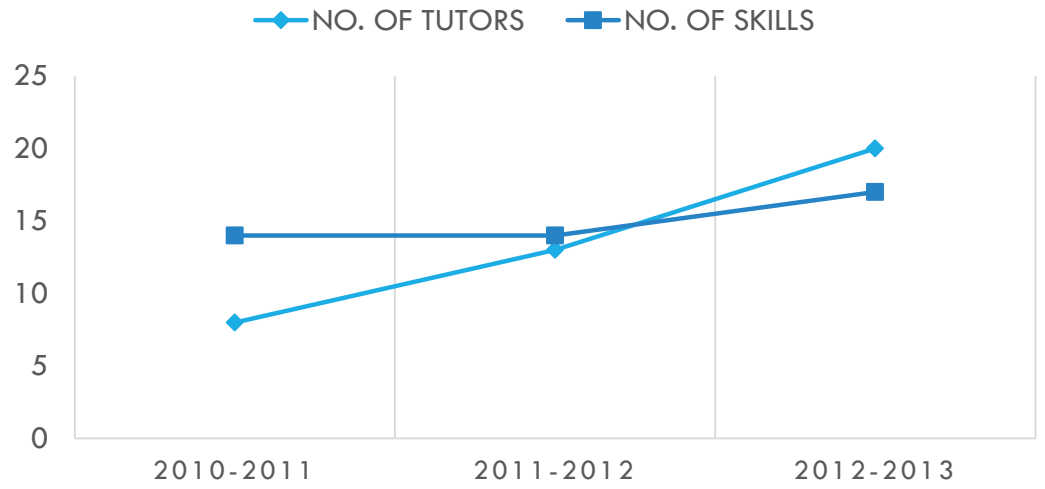
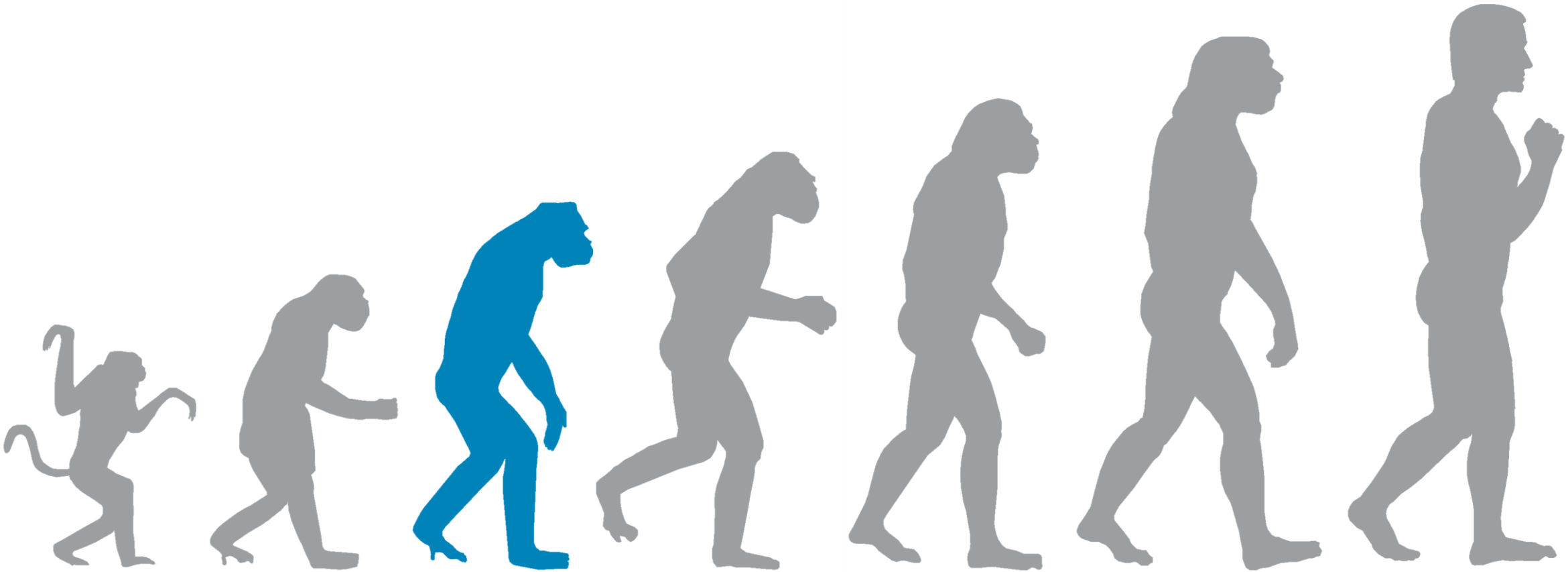
PHASE 2 (2012-2013)

- Incorporation of peer teaching into regular curriculum
- 18-hour propaedeutics clinical skills training with OSCE (5 skills) as part of core subject *Internal medicine with propaedeutics*
- Project work: short courses of clinical skills for 1st and 2nd-year medical students







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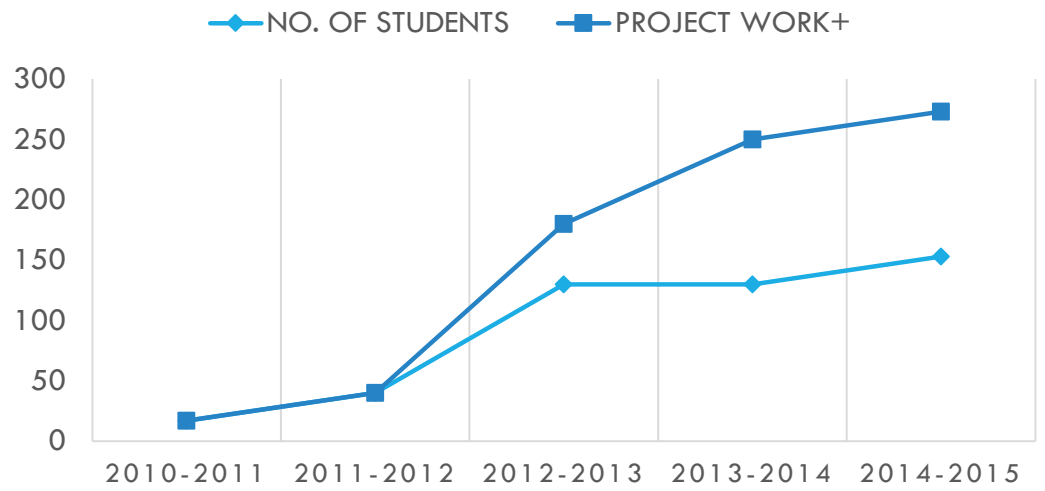
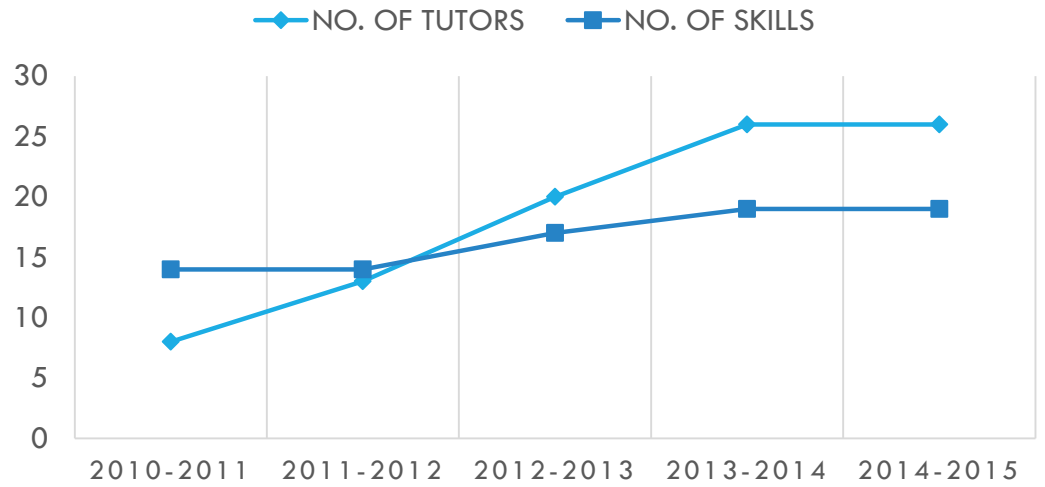
PHASE 3 (2013-2015)

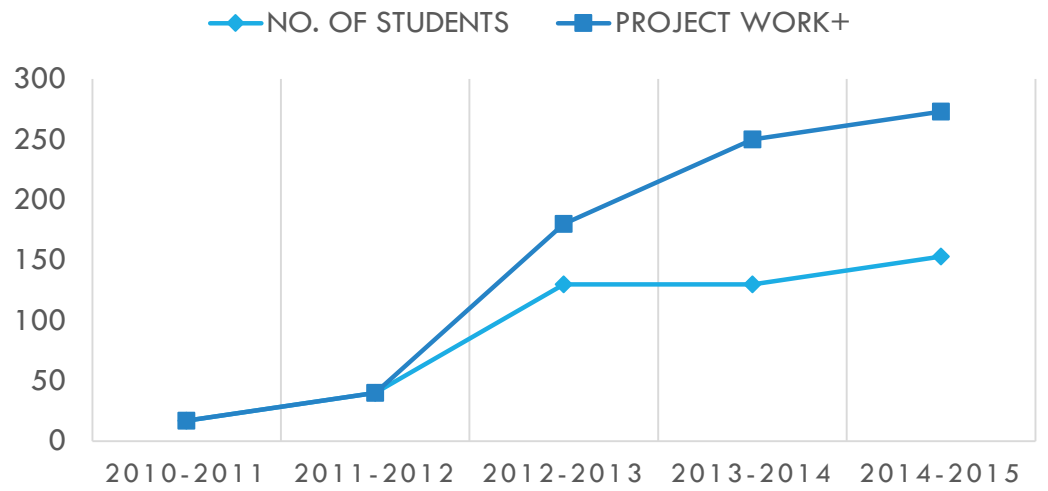
- Basic clinical skills seminars (5 skills) as part of the core subject *Internal medicine with propaedeutics*

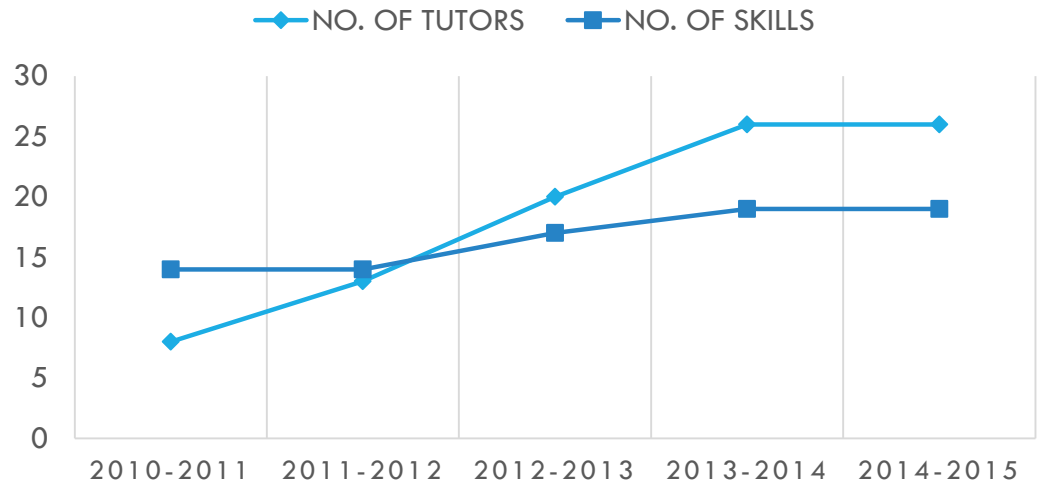
- Venepuncture
- Rectal examination
- Infusion set-up and removal
- Blood pressure measurement
- Recognition of pathological heart and respiratory sounds

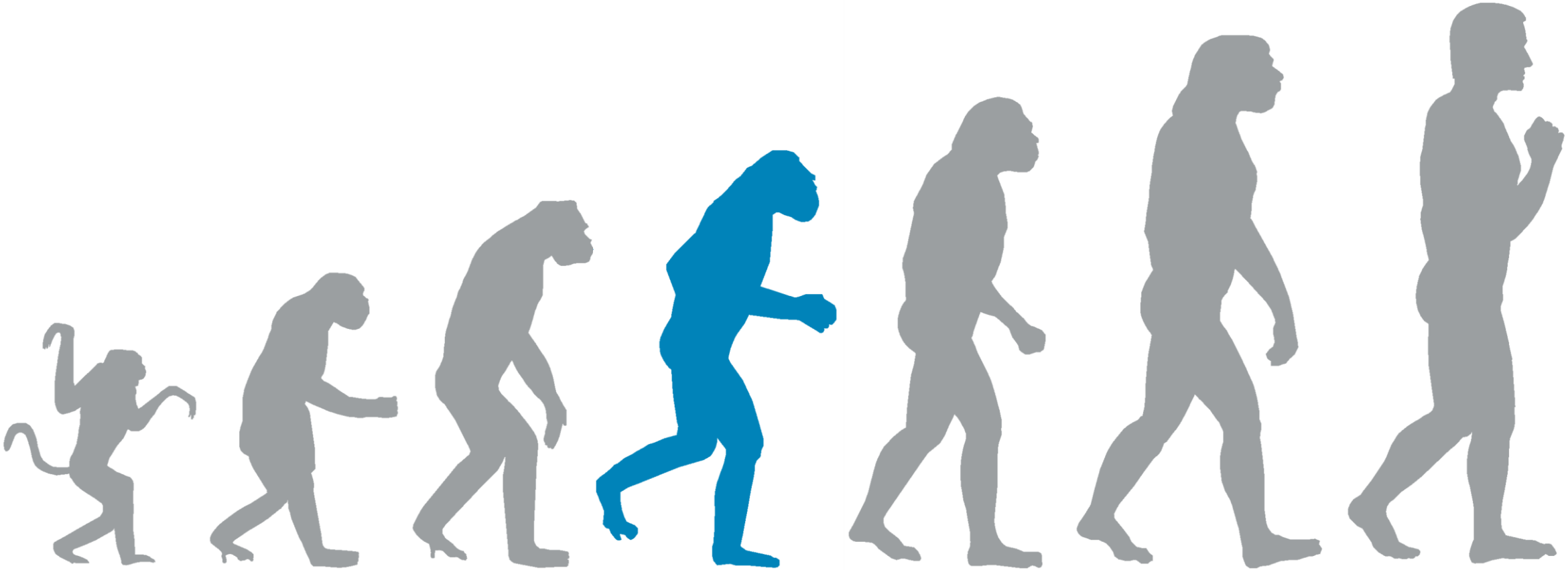




PHASE 3 (2013-2015)







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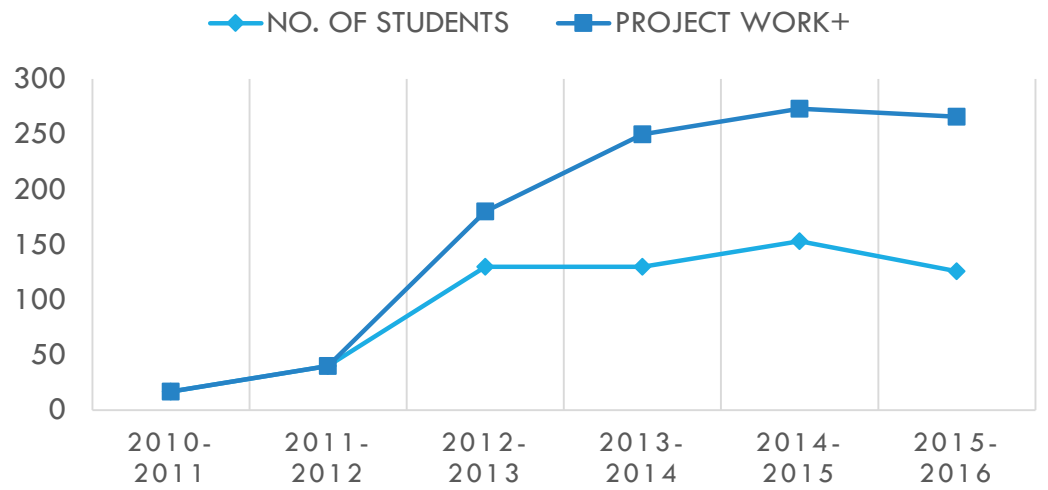
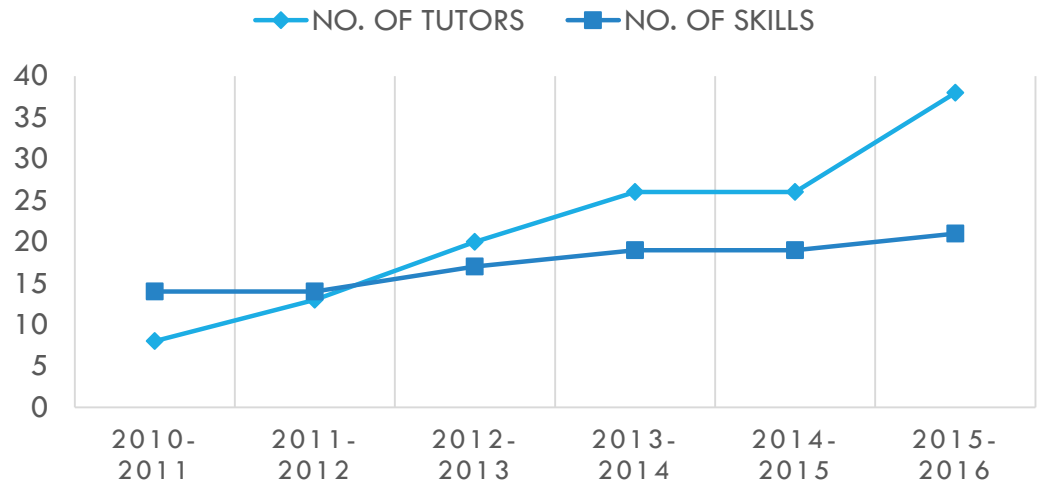
PHASE 4 (2015-2016)

- Implementation of *Surgery* peer teaching – 12 new tutors





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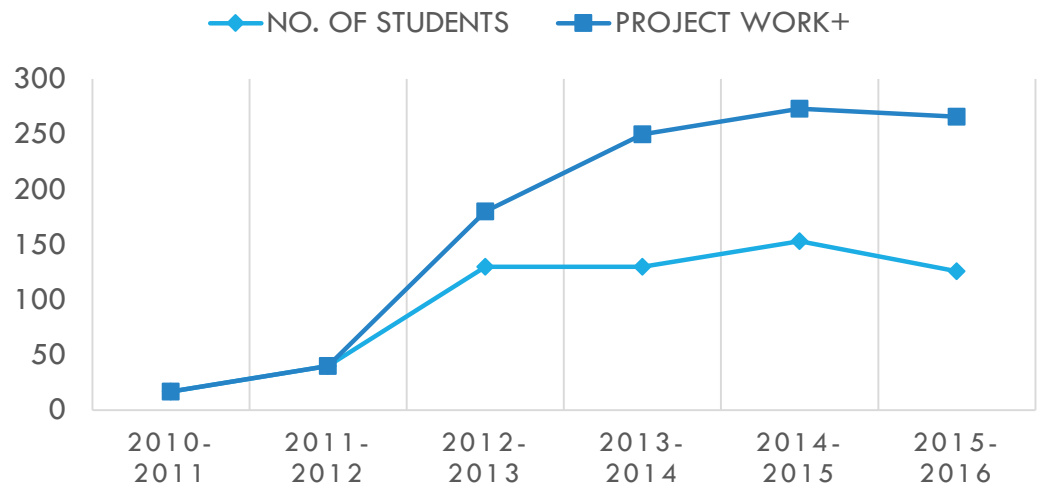

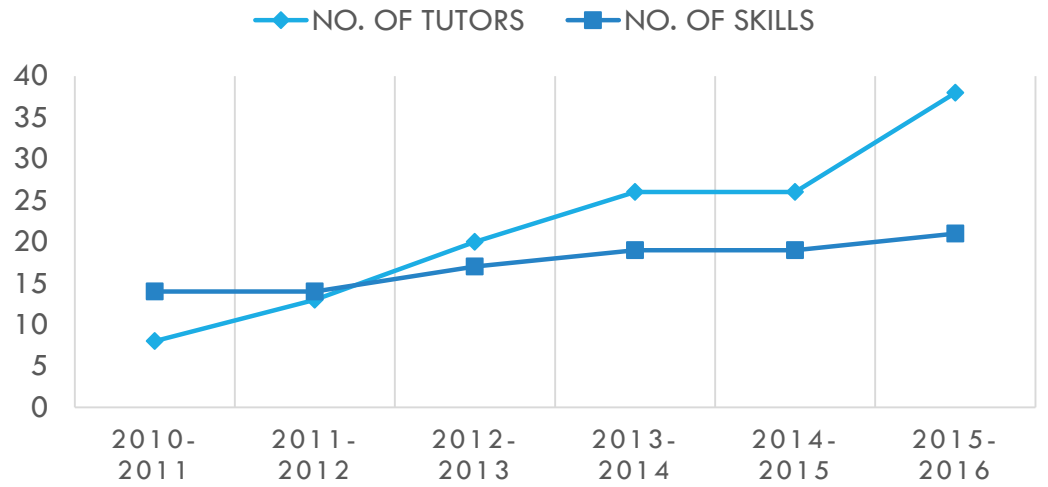

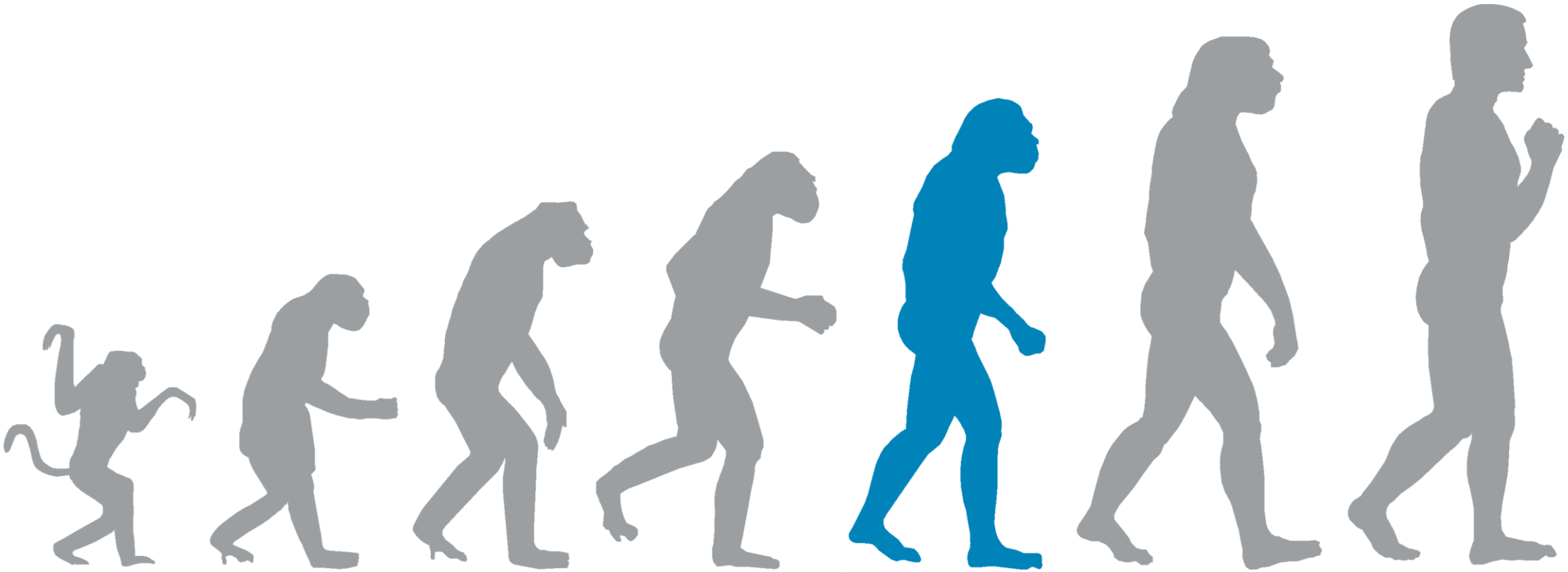

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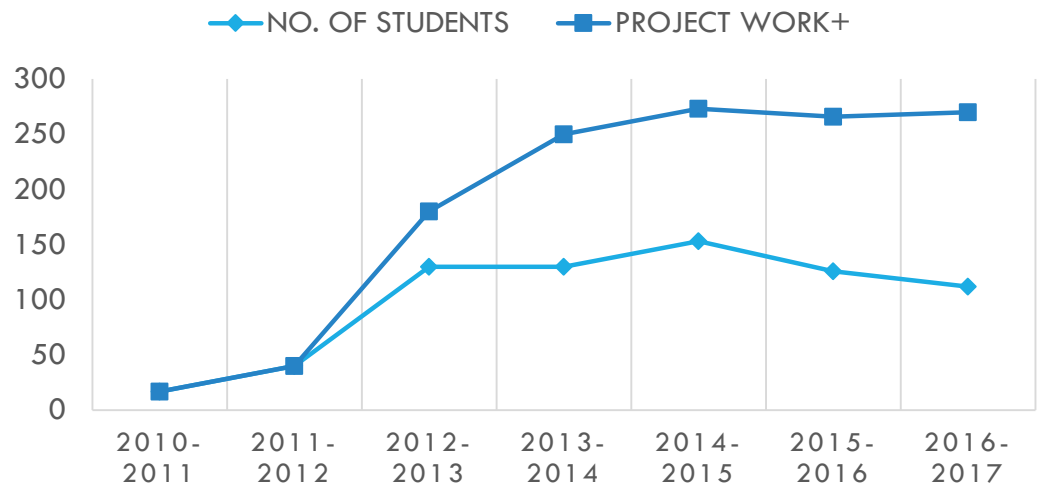
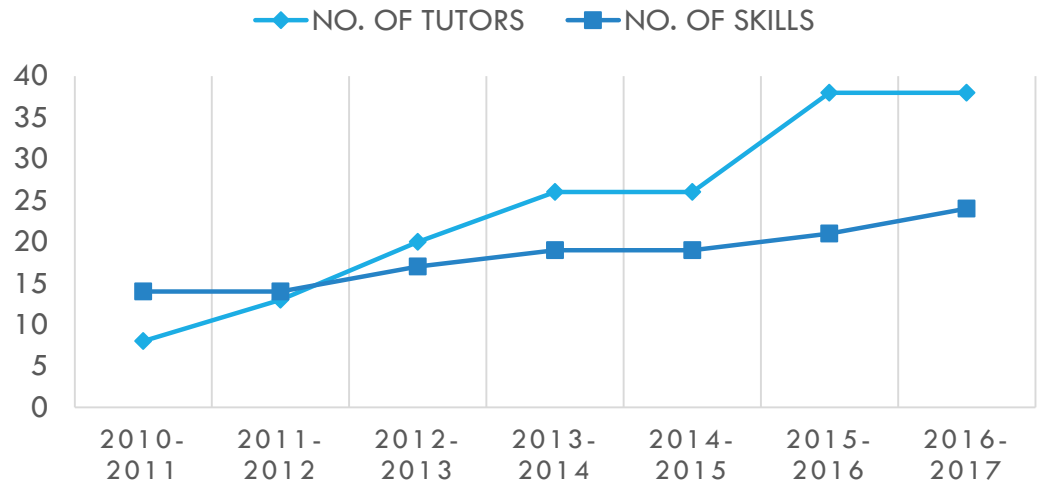
PHASE 5 (2016-2017)

- *Selected topics and novelties in propaedeutics*: PAME (Pocus Assisted Medical Education), Septic Shock and SAH simulation
- *Surgery*: surgical suturing





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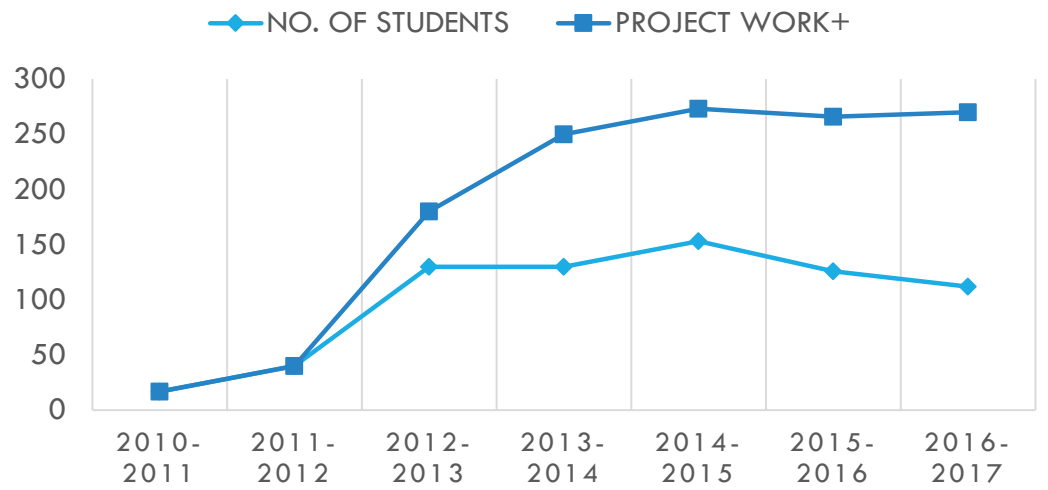

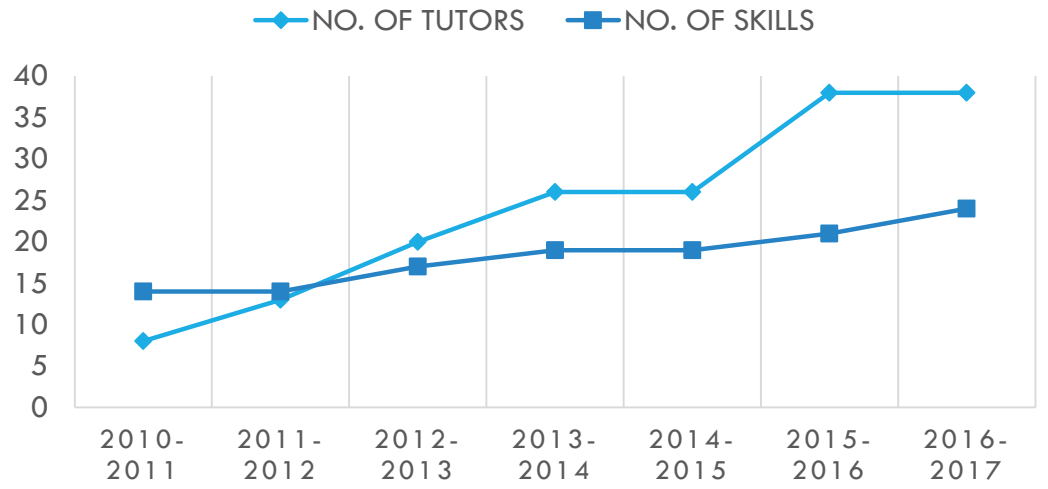

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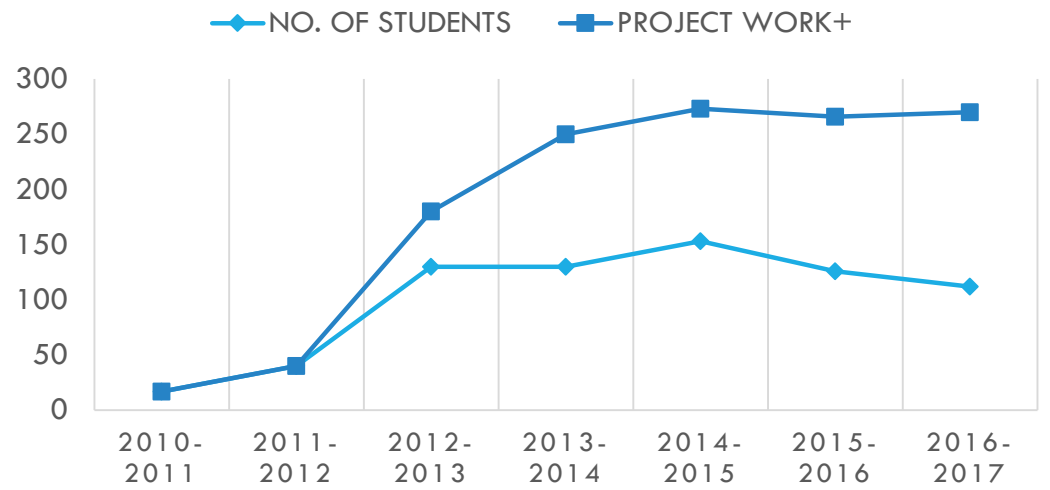

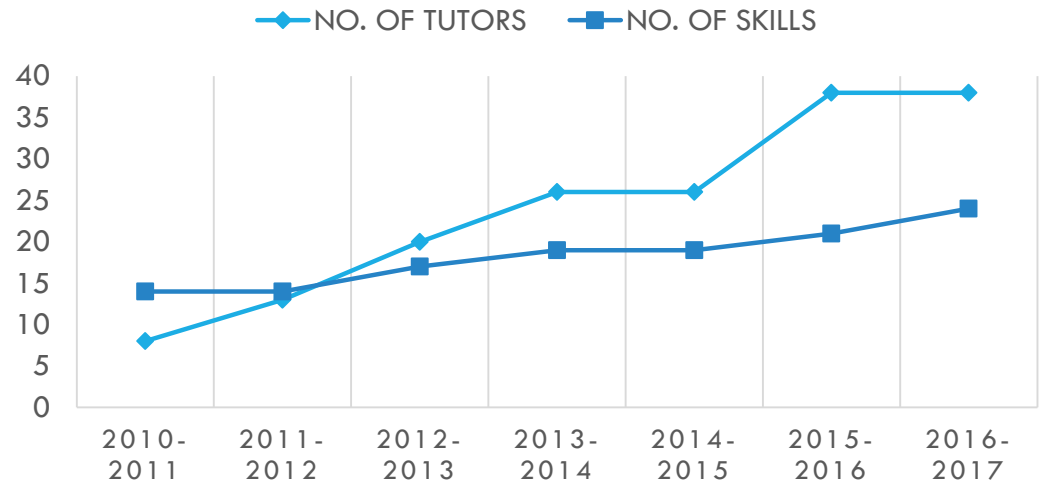

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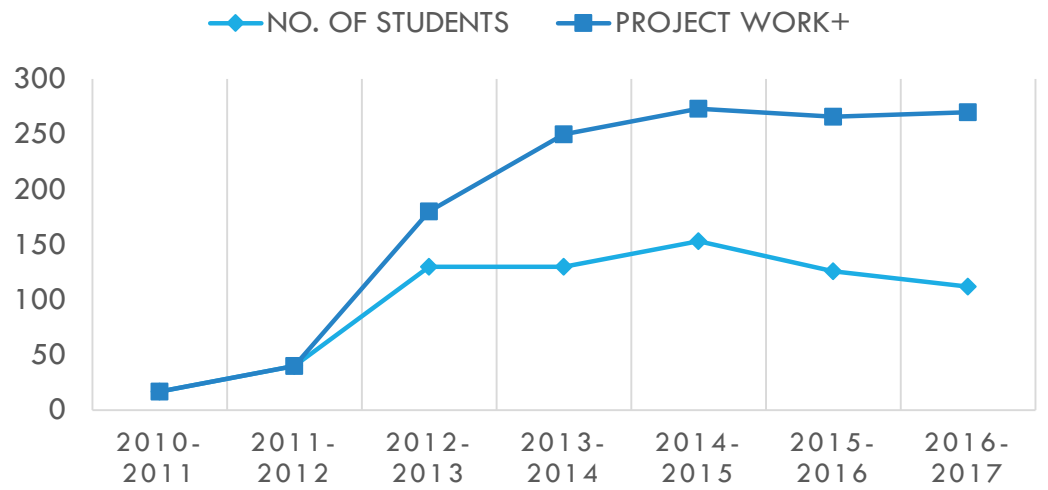

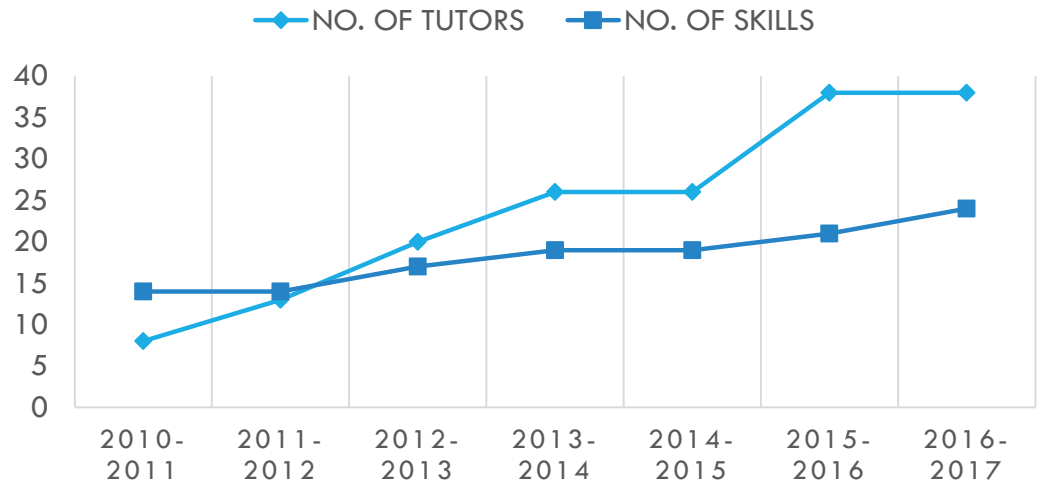

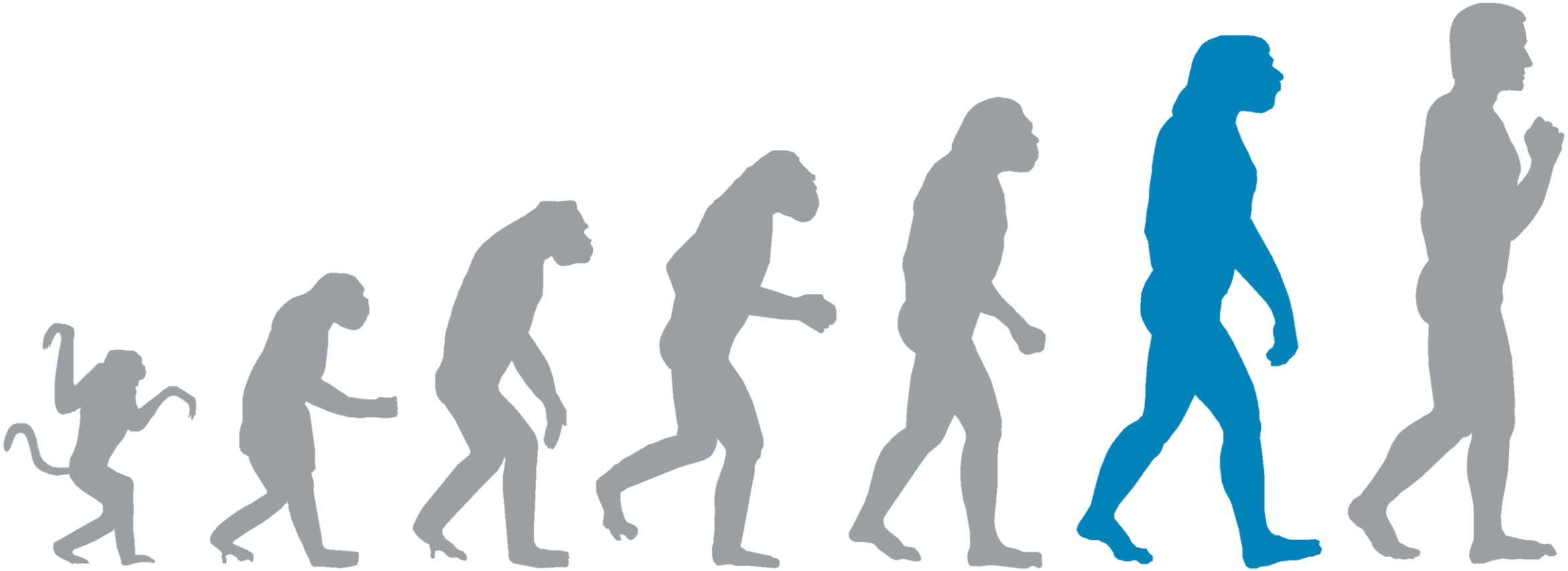

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PHASE 6 (2017-2018)

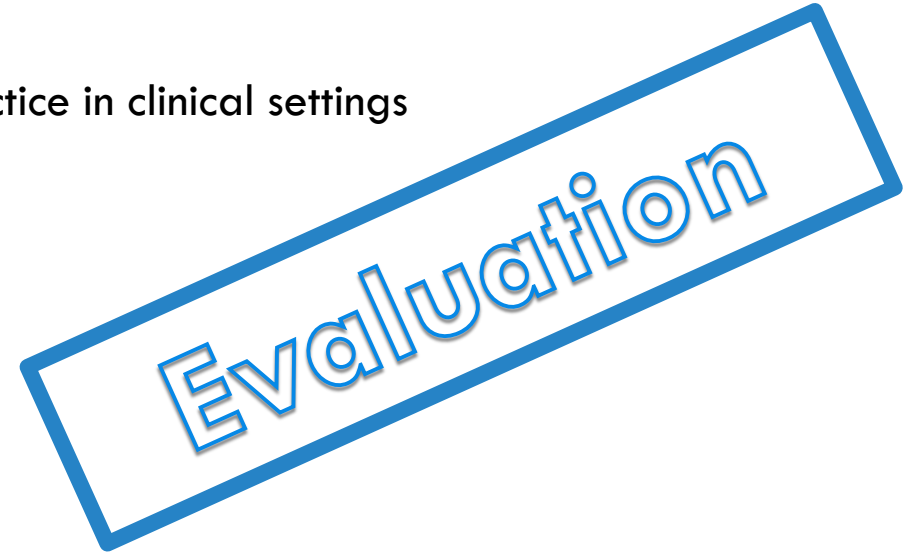
PURPOSES OF THE COURSES

- „Perfect procedural explanations and performance by peer tutors“
- FOCUS on:
  - Teach the tutors to be a teacher
  - Improving the communication and teaching skills of peer tutors
  - How to motivate students
  - How to manage time schedules during the course
  - How to make the course effective for all the participants regardless of their prior knowledge

possible due to
the experiences of senior peer-tutors,
mentors-teachers
and feedback of the
participating students

QUALITY CHECK-UPS

- have been performed since the implementation of clinical skills peer teaching
- the aim of check-ups:
  - assessing the work of peer tutors
  - the impact that their work has on students
  - the impact that their work has on their practice in clinical settings



EFECTIVITY

- there is no significant difference in ten-station OSCE between PT and student performance
- Peer Tutors can successfully transfer clinical skills to colleague students
- clinical skills teaching is more effective when peer tutors are involved
- students perform better with explanation of the procedure by student-tutor

Zdravkovic M, Hrzic R, Bevc S. Student versus Peer Tutor OSCE Performance. In 6. Internationales Skills Lab Symposium 2011:Würzburg, Germany, 2011.

Serdinsek T, Pivec N, Bevc S. The role of procedure explanation in venepuncture simulation. In 6. Internationales Skills Lab Symposium 2011:Würzburg, Germany, 2011.

EFECTIVITY AND CRITICAL NUMBER

- the obligatory nature of propaedeutic simulation training and increased number of students does not affect students' general satisfaction with the training

Zeme K, Todorovic T, Zdravkovic M, Bevc S. Can We Achieve Same Quality with Increased Quantity in Clinical Skills Teaching? In: *Teaching medical skills*. Vienna: Österreichischen Gesellschaft für Hochschuldidaktik, Austria, 2013.

ASSESSMENT

- an important goal of medical faculties should be providing fair assessment of student achievement and thus ensuring patient safety by allowing only competent individuals to progress during studies
- at OSCE, all assessors are not equally experienced
- continual internal evaluation of assessment quality is needed as well as cohesive program to train peer tutors and teachers on assessment

Zeme K, Riznik P, Fluher J, Serdinsek T, Bevc S. Assessors in OSCE - where do we stand? In: *20th Anniversary meeting of the society in Europe for simulation applied to medicine, Poznań, Poland,* 2014.

SELF ASSESSMENT OF STUDENTS

- consequently, their self-evaluation was similar or even more strict that our objective assessment
- teams with communication lesson were more attentive to the transfer of information between team members and their functioning as a team

Riznik P, Sabath L, Bevc S. Good, better, the best? : self-assessment as a tool of teamwork skills improvement. In: *20 years Graz Conference – Impact on Medical Education*. [Graz]: Österreichische Gesellschaft für Hochschuldidaktik (ÖGHD). Innsbruck, Austria, 2015.

EFECTIVITY NON TECHNICAL SKILLS

- education on communication skills in management of acute medical condition should be encouraged in order to improve medical students' communication and clinical competence
- use of communication skills allows better situation overview and effective cooperation of people who are not regularly working together as a team
- a short pre-work conversation does not help to significantly improve outcome of initial management of ACS but rather clinical experience during medical education

Riznik P, Sabath L, Bevc S. Does education on communication skills improve efficacy of acute medical condition management? AMEE 2015: Glasgow, Scotland, 2015.

Sabath L, Riznik P, Bevc S. What's going on with the patient? Situation awareness of medical team members during acute medical condition management. AMEE 2015: Glasgow, Scotland, 2015.

Markovic M, Cernela D, Bevc S. Does a short pre-work conversation help to improve an initial management of acute coronary syndrome? AMEE 2016: Barcelona, Spain, 2016.

SELF ASSESSMENT OF NON TECNICAL SKILLS

- three aspects of overall assessment of communication skills – instructions to the patient, explanations to the patient and interaction between patient and medical student in general
- medical students self-assessment was comparable to peer-tutors evaluation of their communication skills

Sabath L, Riznik P, Bevc S. Communication skills of year-3 medical students and clinical examination of patients on ward. In: *20 years Graz Conference – Impact on Medical Education*. [Graz]: Österreichische Gesellschaft für Hochschuldidaktik (ÖGHD). Innsbruck, Austria, 2015.

STRESS

- medical students do not seem to experience any stress during Simulation courses
- Simulation courses allows them a stress-free environment, in which they get to deal with emergency situations

Auda J, Serdinsek T, Bevc S. Stress During Acute Coronary Syndrome Simulation Course – a Pilot Study. In: 8. Internationales Skills Lab Symposium 2013: Göttingen, Germany, 2013.

REPETITION

- repetitive practice improves students' OSCE results
- Year-3 students performed better presumably due to repetitive practice with feedback provided by PT during their selected component, while Year-6 students did not have the previous chance to practice in simulation laboratory

Pivec N, Serdinšek T, Bevc S. Comparison of year3 and year-6 medical students´ performance in male bladder catheterization simulation. In Book of abstracts: SESAM 2011: simulation: a limitless training methodology: Granada, Spain, 2011.

RETENTION OF KNOWLEDGE

- clinical skills teaching at our faculty is associated with high long–term clinical skills retention of knowledge in students
- Peer-tutors retention of BAUS examination knowledge is high

Serdinšek T, Pivec N, Fluher J, Bevc S. Long-term clinical skills retention rate in peer teaching. In 7. Internationales Skills Lab Symposium 2012: Marburg, Philipps-Universität Marburg; 2012.

Markovic M, Cernela D, Bevc S. Retention of Knowledge of Basic Abdominal Ultrasound Examination performed by Clinical Peer Tutors. In: *Medical and soft skills : teaching and learning*. [Wien]: Östereichische Gesellschaft für Hochschuldidaktik (ÖGHD). Wien, Austria, 2016.

TRANSFORMATION INTO PRACTICE

- medical students can successfully transform their simulator–acquired clinical skills into practice
- medical students needed more time to perform infusion set-up on a patient but gained more points in ISU on a patient than on a manikin
- medical students performed better on hybrid simulators models
  - beside the learning factor, hybrids themselves could also affect students' performance in means of doctor – patient communication

Serdinšek T, Fluher J, Krel C, Bevc S. OSCE - The Real Deal. In: The continuum of education in medicine and the healthcare professions : conference abstracts. AMEE 2012: Lyon, France; 2012.

Zeme K, Serdinsek T, Krel C, Bevc S. Infusion Set-Up Performance on a Manikin and on a Patient: A Pilot Study. In: 8. Internationales Skills Lab Symposium 2013: Göttingen, Germany, 2013.

Nikolic S, Mocnik M, Serdinsek T, Bevc S. Bladder Catheterization Procedure on a Manikin and a Hybrid Simulation Model. In: 8. Internationales Skills Lab Symposium 2013: Göttingen, Germany, 2013.

SPECIAL TOOLS - VIDEOS

- a randomized, controlled study was carried out at the Clinical Skills Laboratory
- Didactic videos represent useful complementary teaching tool for clinical skills learning

			N	Mean	Std. Deviation	Std. Error Mean	Sig.
VENIPUNCTURE	POINTS (max. 30)	Control	24	25,73	3,029	0,618	0,004
		Exp.	24	27,79	1,334	0,272	
	TIME (max. 360 s)	Control	24	224,13 s	43,754 s	8,931 s	0,076
		Exp.	24	206,13 s	21,222 s	4,332 s	
INTRAVENOUS INFUSION	POINTS (max. 28)	Control	24	25,06	2,247	0,459	0,026
		Exp.	24	26,27	1,260	0,257	
	TIME (max. 300 s)	Control	24	252,83 s	45,244 s	9,235 s	0,508
		Exp.	24	245,50 s	29,170 s	5,954 s	

Mursic I, Hebar T, Riznik P, Bevc S. Didactic Video as Teaching Tool for Clinical Skills Learning. In: *20 years Graz Conference – Impact on Medical Education*. [Graz]: Österreichische Gesellschaft für Hochschuldidaktik (ÖGHD). Innsbruck, Austria, 2015.

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. SkillsLab Symposium 2017; Erlang, Germany, 2017.

SPECIAL TOOLS – SOFISTICATED SIMULATORS

- work with iStan is not the reason for poor communication during simulation, but rather unawareness of students how important communication with a patient is
- emphasize importance of communication during simulation and evaluation of communication skills in the assessment of medical students' simulation performance

Markovic M, Serdinsek T, Sadel J, Bevc S. Is mannequin the reason for medical students' poor communication skills during simulation? In Book of abstracts: SESAM, 2016: Lisbon, Portugal, 2016.

SPECIAL TOOLS - GAMES

- using games as a teaching method in medicine appears to be an effective way to facilitate learning theoretical knowledge about practical skills

Luk LL, Pulko N, Serdinsek T, Bevc S. Propaideutikós : the board game that helps medical students gain theoretical background for practical skills learning. In: *Medical and soft skills : teaching and learning*. [Wien]: Östereichische Gesellschaft für Hochschuldidaktik (ÖGHD). Wien, Austria, 2016.

QUALITY OF PERFORMANCE

- students who attended elective courses in 3rd year were able to perform a better physical examination on simulated patients in 6th year compared to those who did not attend these courses

Fluher J, Rižnik P, Serdinšek T, Bevc S. Physical examination : how well do year-6 medical students actually perform. In: 9. Internationales Skills Lab Symposium 2014: Bern: University of Bern; 2014.

MENTORS TEACHERS FEEDBACK

- our clinical teachers believe that clinical skills training contributed to better knowledge of propaedeutics in their medical students
- they also agreed that simulation is an appropriate learning method for medical history taking; that examination protocols contribute to better performance; and that clinical skills training improves students' communication skills

Rižnik P, Zeme K, Serdinšek T, Bevc S. Clinical propaedeutics teaching in internal medicine in year-3 medical students - evaluation results. In 9. Internationales Skills Lab Symposium 2014: Bern: University of Bern; 2014.

CONCLUSIONS

- we are witnessing the popularity of clinical peer-teaching as an opportunity to express and check new ideas in the field of clinical skills learning, small simulations scenarios and ultrasound usage at our Faculty of Medicine
- with the enthusiasm of students, support of professors, and high level of motivation we could maintain and further improve the current system, to continue the good work and to follow the novelties in medical education

- However, open question regarding the appropriate quality of evaluation of peer-teachers and their mentors remains

THANK YOU FOR YOUR ATTENTION!

CLINICAL PEER-TEACHING