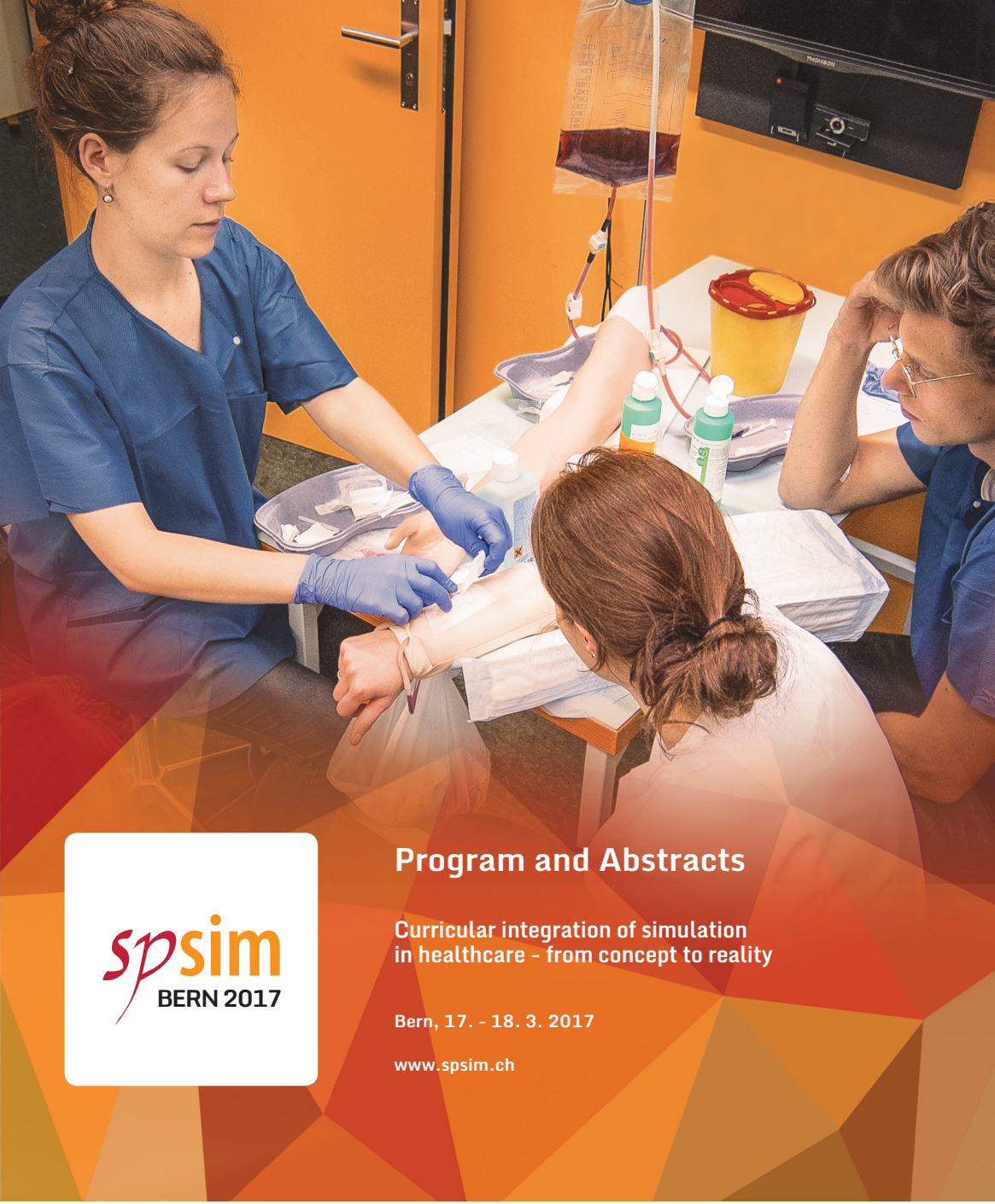


spsim BERN 2017

Program and Abstracts

Curricular integration of simulation in healthcare - from concept to reality

Bern, 17. - 18. 3. 2017

www.spsim.ch

IML Institut für Medizinische Lehre

UNIVERSITÄT BERN

Berner Fachhochschule

HESAV

Berner Bildungszentrum Pflege

Site plan

UniS

Schanzeneckstrasse 1
3012 Bern

1:	Registration desk, wardrobe
2:	Exhibitors
K1-K4:	Keynote
SP1-SP3:	Short Presentation
PP1-PP2:	Poster Presentation
W1-W4:	Workshop
RT:	Roundtable

Table of contents

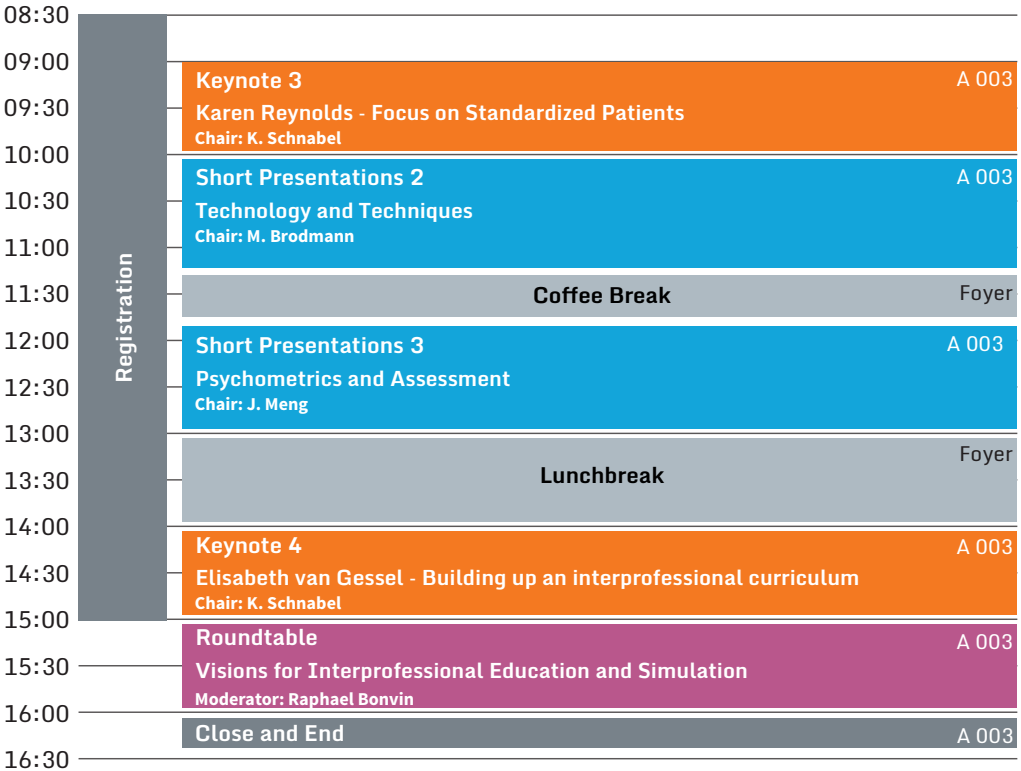
WLAN
The best connection is eduroam.
It is available on site and the best choice for everyone who already knows and uses it.

For all other participants:
Connect your device to the access point "**public-unibe**".
Select the menu item "**Guest Login**" and register with your mobile number and this Voucher Code: ***ataikzse***.
You will receive your access **code** by text message (SMS).

Conference dinner
The conference dinner will be held on **Friday March 17** at the "**Haus der Universität**", Schlösslistrasse 5.
From "UniS" this is within walking distance: less than 1km and approximately 10 minutes to walk.

Program Friday, 17 March 2017

Program Saturday, 18 March 2017



Welcoming address

Dear Keynote-Speakers, Presenters, Participants and Exhibitors of the SPSIM Conference 2017

I am very happy to welcome you to the 5th SPSIM Conference in Bern on behalf of the organising committee and the four institutions constituting the SPSIM Association.

SPSIM is a small conference, and we are quite content that we can keep it small. A small conference offers a different kind of quality compared to a global, large-scale event: Easier networking, lower threshold for approaching the experts as well as feasible organizational efforts. Nevertheless, the mission of the SPSIM is far-reaching:
We want to create a momentum of innovation and change for health care education – particularly in relation to the development and employment of standardized simulations and the use of standardized patients (SP).

The SPSIM is organised by a group of Swiss health care education institutions, that take turns in organising the conference: The 'College of Higher Education in Nursing, Bern' ("Berner Bildungszentrum Pflege"), the Bern University of Applied Health Sciences ("Berner Fachhochschule") and the "Haute Ecole de Santé Vaud, HESAV"), as well as the Faculty of Medicine at the University of Bern, represented by the 'Institute of Medical Education (IML)' that is responsible for the organization of this year's conference. The IML is a competence centre for medical education, serving the Medical Faculty in Bern and various national mandates. Our main fields of activity are services, development and research on learning and assessment, including a post graduate MAS, the "Master of Medical Education. We also have a tradition of keeping up with the challenges of digital transformation, as we develop up-to-date technical tools for learning and assessment.

The institutions engaged in the SPSIM share the interest in interprofessional education (IPE) and emphasize the importance of collaboration across professional borders. Together, we cover a broad range of different health care professions: nursing, physiotherapy, nutrition and dietetics, midwifery and medicine. We are active in both professional undergraduate and postgraduate education in health care and well-connected across the country, as we cover both German and French language regions. A platform for building and nurturing broader cooperation and for sharing ideas has been created at http://www.with-simulation.ch/. We thank the Federal Office of Public Health for its initial support. With the SPSIM conference, we also want to take our goals one step further: we want to foster discussion and exchange on a broader national and international level, including other health care professions.

On the one hand, I understand the SPSIM conference as a means to convey and share aspects that scholars can learn from each other within and across different professions. On the other hand, SPSIM shows that education in health care goes far beyond teaching and learning different contents:
Interprofessional experience: When students do not learn to cooperate over the professional boarders, they have a hard time to practice inter-professional cooperation later.
Learning experiences: Our students are the scholars of the future, so it is our responsibility to provide them with relevant, effective, high-quality and innovative learning experiences.
Professional education: We want to demonstrate how innovative, effective education works by using new teaching methods that lead to sustainable learning and allow our students to interact.

Welcoming address

Hence, when we view students as important carriers of knowledge and values that we want to implement in the professional world, education is a great chance and not only a necessary task. Hence, we need to offer students and residents a rich learning environment, thus enabling them to gain relevant experience: "Engagement in social practice is the fundamental process by which we learn and to become who we are" (Wenger: Communities of practice, Learning, Meaning and identity, 2008). Consequently, effective and positive experiences with various forms of learning, enriched with simulations and interactions with SPs are highly relevant in health care education.

The conference theme of this year is: „Curricular integration of simulation in healthcare – from concept to reality". A simple statement of upmost importance. "Curricular integration" of innovative learning and teaching methods is often a hurdle. When implemented properly, it is an important achievement and eventually proof of concept, as the curriculum is the spotlight of the educational content and methods. Furthermore, our notion "from concept to reality" conveys the goal of making safe learning settings as realistic as possible. Successful simulations and interaction with SPs must enable immersion: In order for Students to practice their role as professionals in realistic way from the beginning in their education, we want them to be immersed in the learning settings. Last but not least, we want to transfer good ideas into practice - given that they have proven to be successful.

These are, in my words, the extensive missions of SPSIM in general and for this conference in particular. I am looking forward to exchanging different views, experiences and new ideas with you during the next days.

We also welcome you to enjoy the city of Bern, which is a UNESCO World Heritage site. At the heart of Bern, you can enjoy its beautiful old town with six kilometres of arcades that offer shelter or shade to visitors strolling through the city.

Sissel Guttormsen
President SPSIM 2017
Director, Institute of Medical Education in Bern

Exhibitors

Gold Exhibitors

ReaVita AG

www.reavita.ch

Gaumard®

www.gaumard.com

mice - Simulation in Motion

www.mice-groupe.com

Silver Exhibitors

Erler Zimmer GmbH & Co. KG

www.erler-zimmer.de

Dräger Schweiz AG

www.draeger.com

CAE Healthcare GmbH

caehealthcare.com

Small Group Teaching with SPs

Karen Reynolds Barry (United Kingdom), Henrike Hölzer (Germany) , Carine Layat Burn (Switzerland)

Rationale: Simulated patients / standardized patients are a wonderful and an effective resource for students to learn and practice clinical skills. Faculty are often asked to facilitate small group student-simulated patient encounters without any formal preparation to manage these complex multi-learner simulations. Intended outcomes: In this pre-session participants will acquire skill sets to manage teaching simulations with SPs, including enlisting SPs as co-teachers, using time outs, feedback/re-practice, and role modeling. Who should attend: Faculty interested in or currently engaged in small group teaching with SPs.

Hybrid simulation

Robert Greif (UHIB) and Kai Schnabel (IML)

In this workshop you will learn about different possibilities of hybrid simulation in training and assessment. Various types of hybrid simulation will be discussed under consideration of the needs, costs, efficiency and desired effects. By the end of the workshop, participants developed ideas how they can implement hybrid simulation at their working place.

Makeup and Moulage

Miria Germano, Beate Brem and Sandra Wüst (IML)

In this workshop, different techniques of moulage will be demonstrated. The participants will have the opportunity to learn these techniques by applying different types of moulages. The various techniques will be discussed under considerations of their advantages and disadvantages. Strategies for standardization and quality assurance will be discussed with the participants.

Realization of a new interdisciplinary Simulation Centre for Bern

Matthias Widmer (University Hospital Inselspital Bern)

The Swiss Institute for Translational and Entrepreneurial Medicine (SITEM) will hopefully be realized by the end of 2018 in the east of the Inselspital campus. For the planning of a modern simulation centre in this location health care professionals from the area of Bern are invited to give their inputs for the business plan. Join us on 16 March, explain your commitment and share your ideas with us in German language.

Hybrid simulation with midwifes and Standardized Patients

Following the main conference topics "curricular integration of simulation in healthcare – from concept to reality" a successfully implemented simulation program in the curriculum of two different professions and disciplines will be presented as an example of teaching and learning with patient actors in a simulator setting using hybrid part skills simulators for inter-professional team training. The main learning happens during effective debriefing which enables deeper insights in the different professional role perceptions and training of speak-up over hospitals hierarchic structures during the video enhanced feedback sessions. Teaching and learning at the interface of two professions offers the possibility of changing attitudes to more collaborative practice beyond the specific professional views of patient care. We are especially interested in the effect of the integration of patient actors in the debriefing and if inter-professional attitudes of the learners change over time. We have no proof that such an inter-professional hybrid simulation with standardized patient actors for midwife students and anesthesia residents does improve patient safety. We observed over the last four years that the key to successful implementation of such an inter-professional simulation program is the joined and shared inter-professional training of the simulation tutor team which improved mutual understanding of the different professional roles and views leading to a cooperative working and learning climate before, during and after the inter-professional simulation training.

Prof. Dr. med. Robert Greif, MME, FERC
After studying medicine at the University of Vienna, Austria, Dr. Greif specialized in anaesthesiology and intensive care medicine. Following a post-doc research fellowship at UCSF-San Francisco, CA, he became an associate professor at the Medical University of Vienna in 2002. In 2004 he was recruited to the University Hospital Bern, Switzerland; and promoted to professor at the University of Bern in 2009.

Beside his engagement in clinical anaesthesia and patient care his research focuses on airway management, resuscitation and medical education. He deepened his interest in medical education attending the Master of Medical Education program at the University of Bern and during the facilitator program of the Stanford Faculty Development Program.

Currently he serves as the Board Director of Training and Education for the European Resuscitation Council, as a member of the European Society of Anaesthesiology's Education and Training Committee and E-learning committee, as the current president of the European Airway Management Society. Prof. Greif is the director of the resident training commission of the Swiss Anesthesia Society, the vice-president of the Cantonal Ethics Commission Bern, and is direction member of the Master of Medical Education Program as well as the Master of Medicine Program, all at the Medical Faculty University of Bern. He is the Editor-in Chief of Trends in Anaesthesia and Critical Care, Elsevier and associate editor of the European Journal of Anaesthesia.

He lectures and teaches courses about medical teaching, faculty development, simulation, resuscitation and airway management, at national and international conferences, at several Universities in Europe, and at the University Hospital Bern medical students and residents. There he is in charge of the 5th year practical exam (OSCE). At the Department of Anaesthesiology and Pain Medicine of the University Hospital Bern, Prof. Greif is member of the board of directors. He manages the "Peripheral Anaesthesia Division" which includes about half of the hospitals surgical specialties, and directs the Medical Education Division which includes the Bern Simulation and CPR-Center (BeSiC).

This simulation center has been running now for 10 years under the lead of Prof. Greif. Core activities are the mandatory training of the departmental staff, simulation for a variety of departments in- and outside the university hospital as well as simulation for the medical students in the master study of medicine in Bern. Over the last years the center prioritized on-site simulation, simulation trainer teaching programs, and interprofessional interdisciplinary hybrid simulation including simulated patients.

Manekins and virtual environments

Prof. Dr med. Antoine Tesnière, PhD

Antoine Tesnière is specialized in Anesthesiology and Intensive care, and has a full time position at Cochin Hospital, APHP, Paris. He is also the Director of iLumens simulation center, Université Paris Descartes, and vice director of the Doctoral School "Frontiers in life sciences", Center for Interdisciplinary Research, Université Paris Descartes. He holds an MD, obtained in 2007 from Université Paris Descartes, and a PhD, obtained in 2009 from Université Paris Sud. He is also Dean for medical education at Université Paris Descartes Medical School. He is working as special advisor for simulation in healthcare for Health Institution (Haute Autorité de Santé), is the current President of the European Society for Simulation in Healthcare SESAM, and the current secretary for the French society for simulation in Healthcare (SoFraSims).

Antoine Tesniere is the co founder of iLumens, an innovative Simulation Department that develops new training and research programs using all simulation modalities, and virtual environments (serious games), for every healthcare professionals. Through all these activities, Antoine Tesniere has developed a renowned expertise in the field of new technologies for information and communication, and of new approaches around learning and teaching, especially for healthcare professionals.

Focus on Standardized Patients

The Interactive Studies Unit at the University of Birmingham, UK, has worked with role players since the early 1990's. Over the last 15 years the program has expanded and now incorporates ACEs and GTAs.
Who are they and what do they do?
Is it difficult to start a GTA program?
Where is the SP methodology going in the future?
How is it expanding?
The Birmingham SPs work with medical, dental, pharmacy, physician associate and veterinary students, as well as qualified health professionals. How can other programmes expand in a similar way?
This talk will look at these questions and will explain how they were recruited, trained and what they currently do within the ISU.

Karen Reynolds
Karen Reynolds (née Barry) is the Manager for the Interactive Studies Unit (ISU) at the University of Birmingham, UK. The ISU offers teaching of the highest quality in communication and related areas, utilising SP methodology, for health professionals and undertake research of the highest quality, which can inform our teaching and educational understanding.
Karen completed a BA in Communication Processes and went on to do some TEFL teaching in Taiwan before she arrived in Birmingham, UK.
Karen started working with the ISU in 2001 as the Administrator and over the first few years there she developed her role and pursued some educational interests. Karen's educational interests are working with simulated patients and integrating clinical communication teaching with clinical skills teaching. Karen is educational lead for the Gynaecological Teaching Associate program at the University of Birmingham, which she set up in 2007 with clinical colleagues.
Currently Karen is an Executive member of ASPiH (Association of Simulated Practice in Healthcare) and is an active member of the SP Special Interest Group. Karen was the Vice-President of Operations for ASPE (Association of Standardized/Simulated Patient Educators) for 2014-2015. She is also a past Chair of ASPE's International Committee. Through Karen's interest in human simulation and her international perspective she has worked on the SSH Certification Committee and the Terminology and Concepts Committee.

Building up an interprofessional curriculum

The healthcare system and medical education per se are faced with numerous challenges – what training and education must we provide to our future health professionals? Notwithstanding the important issues such as competencies, evaluation, learning formats, etc…interprofessional education (IPE) has come to the front of the stage mainly because of its strong link with safety issues and related patient outcomes.
Though quality of evidence relating IPE to patient outcomes or healthcare processes is not that strong, effective teamwork and interprofessional practice and collaboration are considered essential to quality and safety of care. Early interprofessional education, through experiential learning tools such as simulation, could be one of the keys to improve awareness and understanding of future health of what teamwork practice is all about and particularly in the context of patient safety; furthermore, the knowledge gained by learning "with", "from" and "about" each other can help professionals clarify roles and responsibilities for better collaborative care.

PD Dr. med. Elisabeth van Gessel, MER
Elisabeth van Gessel accomplished her undergraduate medical studies at the Faculty of Medicine in Geneva, before starting her postgraduate medical specialty in Anaesthesiology, Pain and Intensive care medicine. This specialty training was completed by a doctorate in Medicine, followed by a habilitation in the same domain of specialty. Other than a few training periods abroad, Elisabeth has been working as a staff consultant for nearly 25 years at the University Hospitals of Geneva.

Besides her deep interest and research in regional anaesthesia as well as her engagement in clinical practice, since 1993, she has been active as a teacher/tutor in undergraduate as well as in postgraduate training, and has worked on a part-time basis as an assistant professor in the Unit of Development and Research in Medical Education (UDREM) at the Medical Faculty.

As such she has integrated and has represented Switzerland at the European Section and Board of Anaesthesiology (UEMS) and has been instrumental in the major reforms both in Switzerland and in Europe of the harmonized Postgraduate Training Guidelines in Anaesthesiology.

From the end of 2010 onwards, she has been first the project manager, then the director of the new Centre for Interprofessional Simulation (CIS), which was inaugurated in November 2013. The CIS and its whole team are active in integrating simulation tools (in a very large sense) in the teaching of undergraduate and postgraduate students for both medicine and the allied healthcare tracks, as well as introducing interprofessional education early in health education.

Competencies of standardized persons during role-play and feedback-discussion

Sibylle Matt Robert[1], Petra Metzenthin[1], Stephan Lichtensteiger[2], Sibylle Heim[2], Priska Gisler[2], Wolfram Heberle[2], Dörte Watzek[1]
[1]Berner Fachhochschule, Gesundheit, Switzerland; [2]Berner Fachhochschule, Hochschule der Künste, Switzerland
sibylle.matt@bfh.ch, doerte.watzek@bfh.ch

Background
Actors are increasingly being employed in various social areas as standardized persons (SP) for educational sessions. An additional characteristic of advanced communication training is that actors are not only employed as standardized persons, but also as communication trainers (CT). They are responsible for the feedback session. At Berne University of Applied Sciences, Health Section lecturers are mostly not present during the trainings. Feedbacks given by standardized persons are effective, if they start with a short self-evaluation of students or if it is guided by a clear standard. This can be a checklist but it is not necessarily a structured aid (Bokken, Linssen, Scherpbier, Vleuten, & Rethans, 2009). The task is challenging and that's why it is important to investigate the necessary competencies. The cooperation of a theatre and a health division gave the opportunity to have a look at communication trainings from both perspectives. The goal of the study is to describe artistic as well as communicational or other professional skills required by the actors for their different roles as communication trainers.

Research question
Which competencies do actors apply in their various roles as communication trainers?
Methods: A multi-method qualitative design with analyses of performances (participatory observation) and seven semi-structured focus group interviews with all involved parties, which are (a) communication trainers, (b) BSc and MSc students, (c) lecturers. Lecturers and students came from nursing, midwifery and physiotherapy. A deductive and an inductive approach were combined in a qualitative content analysis. Categories regarded the two main roles during communication training.

Results
Observational analysis of the theatre division results in the declaration, that there are more roleplays than the one during the first act as patient. The actor's perspectives indicate a roleplay also during the feedback session.
The results of the focus group show, that theatre skills as well as skills from the field of communication and knowledge about health issues and health professional behaviour are needed in every stage. A good communication training performance has to be well prepared and reflected. An excellent roleplay is of no benefit without a good guided feedback session. Main theatrical competencies result from the categories (a) dealing with different roles and functions, (b) attentiveness on multiple layers (Directing on stage), (c) adaptation of theatre skills to diverse requests, (d) improvisation skills, (e) arranging the setting. Concerning all competencies lecturers, students and actors had similar points of view.

Discussion
To our knowledge this is the first investigation of competencies of SPs within these perspectives of health professionals and theatre professionals. Combination of analyses of performances and focus group interviews seems to be fruitful. In the focus groups all involved parties took part.
As the investigation took place within a specific setting of communication trainings generalizability is limited. One cannot completely exclude the aspects social desired behaviours or answers. This leads to future investigation within other settings.

Conclusion
We do ask the question, if there will once be created a profession of communication trainer that shows, how many competencies are essential for actors working with students and that intense instruction of these collaborators is inevitable. Our discussion leads us to a role model for communication trainers adapted from the CanMEDS-Model (Frank, 2005).

References
Bokken, L., Linssen, T., Scherpbier, A., van der Vleuten, C., & Rethans, J. J. (2009). Feedback by simulated patients in undergraduate medical education: a systematic review of the literature. Medical Education, 43(3), 202-210. Frank, JR. (Ed). 2005. The CanMEDS 2005 physician competency framework. Better standards. Better physicians. Better care. Ottawa: The Royal College of Physicians and Surgeons of Canada. Retrieved 16.01.2014: http://www.ub.edu/medicina_unitateducaciomedica/documentos/CanMeds.pdf.

Using Serious Games to Train Patient Observation

Claudia Schlegel, Uwe Weber
Berner Bildungszentrum Pflege, Switzerland
claudia.schlegel@bzpflege.ch

Introduction
A key precondition to improve patient safety is, that clinical practitioners are able to identify everyday risks to patients. Patient safety is an important element in the training of nurses. Clinical practice feedback shows that second-semester nursing students are experiencing difficulties in assessing the overall situation presented by a patient and his environment using focused observation, and initiating the necessary measures. Focused patient observation is crucial, as it increases patient safety. In order for students to learn and train patient observation in their first semester, a serious game was developed. Serious games are conceptually aimed at conveying knowledge and allowing players to discover and learn. The question is whether serious games represent a lastingly instructive teaching method.

Method
In order to assess the efficacy of serious games as a teaching method, the study was designed as a static group comparison. Two groups of first-semester nursing students (n=86) took part in the study. The intervention group played a game with a video still of a patient room presenting risks for the patient. Students were asked to find 11 errors using a limited number of clicks. At each correct click, a text faded in explaining why this represented a potential hazard. When students did not achieve the required number of correct answers or when they exceeded the number of clicks allowed, they went back to reading about the topic before playing the game again. Once the game had been successfully completed, a reading assignment gave students the opportunity to deepen their knowledge of the topic. The control group was given the same still image in paper form, was tasked to find the same 11 errors, and was also able to read why these errors represented potential risks. They were given the same reading assignment to deepen their knowledge of the topic. The posttest was conducted as a formative OSCE station. Students from both groups were run through a ward presenting a re-enacted scene similar to the still they had seen. Students had to tell observers which measures they would initiate to improve patient safety. Observers were blinded and did not know which students belonged to which group. Data analysis will take place in winter 2016.

SPs' knowledge of adherence to feedback standards - Results from feedback trainings and an observational study

Julia Freytag
Charité Universitätsmedizin Berlin, Germany
julia.freytag@charite.de

Background
Feedback trainings are an extremely important part of the instruction of Simulated Patients (SPs). As we make much effort to prepare our SPs adequately, giving feedback remains a very difficult task and its quality is often not as high as desired. But what are the causes for that? Do SPs not know or understand all standards? Or do they find it just too difficult to meet them all? Through different approaches we tried to gain more insight into SPs' knowledge of our feedback standards on one hand and their adherence or non-adherence to this standards on the other hand.

Research question
Our main research questions were: Which of our standards for giving feedback do SPs know? And which of those standards do they meet? We wanted to know if it is possible to identify certain patterns of feedback rules that are hardly known, that are often missed out on and to examine potential connections between those two areas.

Methods
We held several "advanced" feedback trainings and asked SPs afterwards, which of the standards they had already known before. Additionally, we observed 34 SPs while giving feedback after a simulated encounter in a communication skills course. For the observations we used an assessment tool for SP-feedback, developed by the SP Committee of the German Association for Medical Education (GMA) which includes 21 feedback standards (e.g. SP uses specific examples in his/her feedback).

Results
45 SPs took part in one of the feedback trainings. The overall knowledge level was high with 15 out of 21 standards that were known by at least 80% of SPs. Areas with low knowledge levels were for example connected to a well-balanced speaking time between learner and SP or the checking of students' understanding of SP's feedback. This results were supported by our observations (N=34), where we found low adherence rates in the same areas. We also found some discrepancies, e.g. that SPs adherence to using descriptive vocabulary in their feedback is rather low (50%), although almost all SP (86%) stated, they know this rule.

Discussion
The participants in our trainings and in the observational study are a representative sample of our SP pool (considering age, experience etc.), still 45, respectively 34 data sets, only have a limited explanatory power. Furthermore the data from the feedback trainings cannot be linked to the data from the observations on an individual level. Nonetheless the results show that many standards with low adherence levels are standards which a lot of SPs do not seem to know. Feedback trainings which focus on securing the knowledge and understanding of all standards therefore present a first step to an improved feedback quality. In a second step we must turn our attention to standards which are known, but not yet met.

Conclusion
Our research suggests that some deficits in the quality of SPs' feedback are connected to SPs' knowledge and understanding of the feedback standards. This problem can be easily approached in future trainings. Further research is needed to find out the reasons why some standards are known, but not met. Possibilities include that these standards are too difficult for some SPs or have not been trained well enough or that they are simply considered as not important by SPs.

Patient simulation in neurology : choosing sensory and attention cueing for patient with Parkinson's disease and teaching its use in everyday life

Sylvie Ferchichi, Isabelle Chebil Dobbi, Corinne Gaudin, Nicolas Perret
Haute Ecole de Santé Vaud, Switzerland
sylvie.ferchichi-barbey@hesav.ch

Background

Most of the student have difficulties in understanding and getting a correct representation of the OFF phase phenomena in Parkinson's disease (PD). They do not realise how challenging it can be to teach motor strategies to patients. They also have minimal concern about how to teach a patient to use these tools -the cues- in everyday life. We reached the limits with traditional teaching methods (ie: videos, clinical description, clinical vignette). Therefore, we came to simulation in order to offer an authentic experience: a real interaction with a simulated patient (SP) in a secure environment. We decided to teach experienced SP to portray the physical signs (akinetic, lack of mimic, lack of motricity), non-verbal behaviours (slowed treatment of information, slowed flow of word) and emotional response to a situation (augmented tremor with stress) of a patient with PD in OFF phase. The students received theoretical teaching about pathophysiology, medical and physiotherapeutic treatment, including the use of sensory and attention cueing. They worked on two different clinical cases, watched videos of the typical signs and effect of cueing on patient in OFF phase. Before the simulation, the case description and simulation modalities have been exposed. During the simulation, they had ten minutes, either to try a cue or to teach a cue to make the patient independent in its use in everyday life. After each performance, the students gave their impressions and ideas of improvement for a next treatment. Then, they received feedback from the other students and the teacher about their technical and communication skills. After a group of five students, the simulation ended and the SP left his role to give specific feedback on predefined points from a patient perspective.

Research question

We wanted to know if the simulation is a good way of improving the skills of choosing and teaching cues for patient with PD. We also wanted to know the degree of satisfaction of the students with the simulation on different points.
Methods: We asked the student to fill in a twelve-questions questionnaire directly after the simulation. Some were open questions, others were based on a Likert scala ("not at all", "rather not", "rather", "absolutely", "not applicable").

Results

We received 43 questionnaires on 43. Forty-two students indicated that the simulation was educative, enriching, rewarding, interesting and playful. Twenty-one quoted the real-life situation positively. The latter were particularly interested in the feedback of the patient and the confrontation with the patient; the reason "knowing his own limits and strengths" was first mentioned. 93% of the responders felt they had enough tools and knowledge to take benefit from the simulation. 100% of the student considered the simulation a good means to acquire the targeted skills. 100% of them thought to have extended their tools to integrate in their practice, especially exercises ideas, strategy integration and clearer communication. The degree of satisfaction (quoted on 4) with the credibility was 3.9, the realism 3.7, the difficulty of the scenario 3.4, the lay out of the room 3.1, the feedback from the SP 3.7 and the others feedback 3.8. To receive a feedback was very important for 93% of the students, particularly because it's an external point of view (SP). Finally, though it was the first experience for these students with the simulation, they felt comfortable with the patient for 96% of them. They wished for 100% of them to use simulation for upcoming courses on other neurologic disease.

Discussion

The results show that the simulation was an appropriate method to achieve our pedagogic objectives. The real-life situation and the feedback from the SP was highly rewarded, showing that the external point of view is sometimes better considered than the feedback from peer or teacher. It's an interesting point as this could also support the teacher's point of view, meaning the external view doesn't differ from the "internal" view. The simulation in this situation helped them to improve their skills in choosing and teaching the cues, from the communication and technical view. We could observe that the students were more implicated in the situation than with a "traditional" way of teaching. The credibility was not a concern as most of the students ended up asking if the SP was really suffering from the disease.

Conclusion

We can conclude that the simulation is a good way to teach the use of cues with patient with PD, that the play was credible and that the students will use tools learned in the simulation in their future practice. We could also think of developing new situation of simulation with neurological disease, keeping in mind that particular neurological deficiency as spasticity or ataxia cannot be simulated by neurologically intact people.

Can death be simulated? Using simulation to teach nursing students about End-of-Life Care

Anna Christine Steinacker
University of Applied Sciences Fulda, Germany
anna.steinacker@pg.hs-fulda.de

Background
In Germany 46% of all adults are dying in hospitals. Nurses are the primary caregivers of these patients and therefore it is necessary that they are thoroughly trained to meet the specific needs of this group. The results of many studies suggest that nursing students are inadequately prepared to care for dying patients. Possible reasons are a lack of theoretical knowledge as well as unsatisfactory mentoring during clinicals. If these problems aren't addressed it could lead to anxiety and nervousness in students. Simulation proved itself to be an effective learning and teaching tool and could help to close the theory- practices gap, especially concerning end-of-life care.

Objectives
In this small study it was questioned how students perceive the use of simulation to learn about end-of-life care.

Methods
Five second and third year nursing students at the University of Applied Sciences Fulda went through a simulated experience with a dying patient and a family member. They were asked to perform oral care and assess the patient. During simulation they were asked questions about end-of-life care by the family member concerning spiritual care and improving the quality of life at this stage. Debriefing sessions were performed after each simulation.
A qualitative design was chosen for this research project. After the simulation and debriefing sessions, semi-structured interviews were conducted. The results were written into memos and analyzed using the Grounded Theory approach according to the sociologists Glaser and Strauss.

Results
Through the process of theoretical coding five results were discovered: Simulation revealed to be a good method the teach end-of-life care (1), simulation focused on communication (2), a lack of theoretical knowledge was reported (3), the importance of spiritual care was questioned (4) and the high-fidelity patient simulator seemed too unrealistic (5).

Discussion
There are no publications on the subject of simulation in end-of-life care training in Germany yet. But the results of this study are similar to studies published in other countries. The nursing students reported a lack of theoretical input about caring for dying patients. This concerns the physiological and psychological stages of dying as well as the spiritual needs of these patients. Some of the students were unsure how to address spiritual issues and if spiritual care was even part of the nursing profession. Communication was seen as the most important aspect of the simulation for the students. They especially approved of the family member, who was played by an amateur actress. Oral care and patient assessment happened in the background. The students also criticized that the high-fidelity simulator didn't seem realistic enough. Especially since there were no changes in skin color. During the simulation the vital sign were programmed to reflect a patient at the end of life. But for the students the appearance of the patient was more important than signs on a monitor.

Conclusion
Simulation was found to be a valuable tool in the teaching of end-of-life-care especially as a communication exercise.

References
Corvetto, Marcia A.; Teakman, Jeffrey M. (2013): To die or not to die? A Review of Simulated Death. In: Simulation in Healthcare 2013 (8), S. 8–12.
Grote-Westrick, Marion; Volbracht, Eckhard (2015) Palliativversorgung. In Spotlight Gesundheit 10 (2015)
Gillan, Pauline C.; van der Riet, Pamela J; Jeong, Sarah (2014): End of life care education, past and present: a review of the literature. In: Nurse education today 34 (3), S. 331–342.
Hamilton, Cam A. (2010): The Simulation Imperative of End-of-Life Education. In: Clinical Si- mulation in Nursing 6 (4), S. e131-e138.
Kopp, Wendy; Hanson, Melissa A. (2012): High-Fidelity and Gaming Simulations Enhance Nursing Education in End-of-Life Care. In: Clinical Simulation in Nursing 8 (3), S. e97- e102.
Leighton, Kim (2009): Death of a Simulator. In: Clinical Simulation in Nursing 5 (2), S. e59- e62.
Leighton, Kim; Dubas, Jenna (2009): Simulated Death. In: Clinical Simulation in Nursing 5 (6), S. e223-e230.

How realistic are low cost, low fidelity bronchoscopy simulators?

Joel Gysin, Tina Pedersen, Annigna Wegmann, Lorenz Theiler, Robert Greif
Department of Anaesthesiology and Pain Therapy, Inselspital, Bern University Hospital, University of Bern, Switzerland
joel.gysin@students.unibe.ch

Background
Competent bronchoscopy needs training, and simulation is a well-established educational approach before anesthesiologists or pulmonologists perform this invasive procedure on patients (1). In simulation, trainees practice how to orientate and steer the fiberscope within the bronchial tree. Several low-fidelity airway simulators are commercially available, featuring the key structures of the tracheobronchial tree. We questioned the accuracy and the realistic representation of human anatomy in these available simulators. For this reason, to provide a realistic and cost-effective airway model, we developed a bronchial tree simulator based on human thorax CT-scans using rapid prototyping (3D-Print) technology (Shapeways Eindhoven, Netherland).
Research question and outcome measurement: The aim of this prospective, randomized, single-blinded, crossover, comparison study was to evaluate how realistic our 3D-print model would mimic human anatomy compared with two commercially available airway simulators. The primary outcome was the rating of participants when localizing the right upper lobe with a fiberoptic bronchoscope, measured on a visual analog scale (VAS) ranging from 0mm representing "completely unrealistic anatomy" to 100mm representing "indistinguishable from a real patient". Secondary outcomes were the ratings when placing a bronchial blocker in the left main bronchus, when aspirating fluids from the right lower lobe, and the overall realism of the models. Our hypothesis was that our model would be non-inferior to the commercially available simulators.

Methods
With ethic committee approval and written informed consent, 30 experienced anesthesiologists and pulmonologists from the Bern University Hospital were invited to participate. They performed three tasks in random order: 1) Localization of the right upper lobe; 2) Placement of a bronchial blocker into the left main bronchus; 3) Aspiration of 10ml water from the right lower lobe. The two commercial simulators were the Laerdal Airway Management Trainer with Bronchial Tree (Laerdal Stavanger, Norway) and the AirSim Advance Bronchi (TruCorp® Ltd, Belfast, Northern Ireland). All three simulators were covered with surgical drapes and the tracheas were intubated to provide identical conditions and blinding of the participants. Sample size was calculated assuming the commercially available models would score 60mm (VAS) and non-inferiority was a score of ≥50mm. Given a significance level of 0.05 and a standard deviation of 15 mm, 16 subjects are required to reach a power of 80%. To account for assumptions and to secure the power of the study, we aimed to include 30 participants.

Results
So far, 16 participants were included. The preliminary results show a median VAS score for the primary outcome (localization of right upper lobe) of 70mm (interquartile range(IQR): 47 – 84mm) for Laerdal; 61mm (32 – 81mm) for TruCorp and 76mm (66mm – 88mm) for the 3D print model (p=0.0490 Friedman-test, effect size Cohen's d= 0.93). The placement of the bronchial blocker was rated (Median and IQR) 69mm (58 – 79mm) for Laerdal, 72mm (62 – 85mm) for TrueCorp and 73mm (57 – 83mm) for the 3D print model (p=0.5698). Median VAS scores (IQR) for suctioning of fluid was: Laerdal 49mm (32 – 64mm), TruCorp 61mm (45 – 73mm) and 3D print model 59mm (31 – 77mm) (p=0.1738).
The median VAS scores (IQR) for how realistic the model was in general were: Laerdal 67mm (50 – 78mm), TruCorp 72mm (52 – 79mm) and 3D print model 73mm (68 – 80mm) (p=0.2910).

Discussion
The preliminary results suggest that the 3D printed model performs equally well or even better compared to the two other simulators. Given the differences in costs of approximately 1.000€ for Laerdal, 3.500€ for TruCorp (not possible to only buy the bronchial tree) versus only 90€ for the 3D print model, superiority of the 3D print model was reached with less than 5% of the costs. However, our model is only suitable for bronchoscopy training and not for intubation training, as it lacks a supraglottial airway. Since studies suggest that training with any kind of bronchoscopy simulator (high- or low-fidelity) will lead to better patient care and better performance in clinical practice (2, 3), our low-cost, yet effective, 3D print model could be an attractive alternative to commercially available simulators in order to train novices.

Conclusion
The 3D print bronchial tree model is non-inferior compared to substantially more expensive commercially available simulators. This suggests our model is an alternative for training basic bronchoscopy skills. Another advantage is the possibility of printing a training model for patients with complex anatomy, when using their CT-scans as template.

References
1. Ernst A, et al. Chest. 2015;148(2):321-32.
2. Chandra DBet al. Anesthesiology. 2008;109(6):1007-13.
3. Naik VN et al. Anesthesiology. 2001;95(2):343-8.

Motion tracking for mass-casualty-incident simulations using cell phones

Boris Tolg
University of Applied Sciences Hamburg, Germany
boris.tolg@haw-hamburg.de

Background

The simulation of mass-casualty-incidents (MCI) requires a huge amount of standardized patients (SP), medical and paramedical staff, resources and time. Nonetheless it is important to train the necessary protocols as often as possible to be prepared in case of a real situation. Since these simulations cannot be realized on a short-term regular base it is important to gather as much information as possible.
The project introduced here allows the role centered automatic tracking of participant movements in a simulated MCI scenario without gathering information about their identities. This tracking allows automatic detection of the time needed to rescue the SPs, the transport time to the treatment area and the time until the SPs are on their way to the hospital. The collected data can be used for debriefing while the role is separated from the involved participants. In that way a neutral review of the simulation is possible. Additional dissections of the simulation are also possible.

Project description

In this project a cell phone app is developed which allows live tracking of participants of an MCI simulation. The data is sent to a server, so that the current movement can be displayed and analyzed. The submitted information allows no inference to the real person or the submitting cell phone. The first message, which is sent only once gives background information of the function of the participant within the simulation e.g. emergency doctor, fireman or patient (red) and an optional tag which allows conclusion about the case depicted by the standardized patient. The following messages sent every second contain latitude, longitude and altitude information together with a time stamp. Additionally a Windows program is developed which analyzes the submitted data. Current movements are displayed, so that the whole simulation is under surveillance. At the same time the Software allows the analysis of the submitted data. The submitted paths can be shown and the simulation can be replayed and discussed step by step. The area of operations is detected automatically and the movement coverage of that region is shown, so that hotspots of interest of the involved people can be identified.

Outcome or expected outcome

First test runs of the software show that it is possible to track the participants of an MCI simulation and display their movements live on a PC. The Area of operations could be detected, subdivided into smaller regions and the probability of passing through the smaller regions could be calculated. The result is a coverage map of the region marking the spots of interest for the medical and paramedical staff. By selecting only the movement history of special roles it is possible to show the interaction of these roles during the time of the simulation. The whole simulation could be replayed so that all movements could be used for a debriefing. SPs within the simulation could be marked which allows the software to measure and display the time needed to find and transport the SPs. Since the first test run was used to test the software and to implement missing features based on realistic movements, not all roles were measured in the course of the simulation. Hence the measured movements did not cover the whole scenario and they could not be used for a debriefing. As a next step the display of motion and event data shall be used for a debriefing in order to evaluate the advantages and possible optimizations of the method for the training.

Challenges

The detection of movement works well as long as the participants are outside of buildings and the GPS signal is not disturbed by e.g. concrete. Also the cell phone needs a good connection to the next network receiver so that the gathered data can be transmitted. The latter can be handled by implementing a data buffer that collects movement data if a connection to the network is impossible. This will save the data but of course prohibits a live tracking. Within buildings the tracking is a challenge, since the network connection and the GPS signal is blocked by obstacles. A possible solution would be indoor GPS [1] which is not available in all buildings. But further research has to be done to find a simple solution without an elaborate preparation of the simulation area.

Discussion

This project aims to develop a cell phone app that tracks movements of roles within a simulated MCI as well as a software visualizing the measured data to improve the analysis of events and the debriefing. First measurements show that it is possible to collect and analyze movement information as long as participants stay outside of buildings. Further development and research has to be done to improve the collection of data even inside of buildings and to proof that the collected data improves the debriefing.

References

[1] Indoor Positioning via Three Different RF Technologies, Vorst et al., 4th European Workshop on RFID Systems and Technologies (RFID SysTech), 2008

Continuous Education for Communication Trainers: Using the method Flipped Classroom to improve Communicational Skills and enhance teambuilding

Sibylle Matt Robert
Bern University of Applied Sciences, Switzerland
sibylle.matt@bfh.ch

Background
The Bern University of Applied Sciences, Health Division, collaborates with professional actors who act as Communication trainers (CTs). Compared to settings with standardized patients CTs have extended competencies. Apart from functioning as partners in the role plays and giving a short subjective feedback they are also moderating the demanding feedback discussion and link findings out of the role play with communication theory. In our setting there is no other faculty member present.
Collaborating with a team of CTs mainly consisting of external staff members means that they not only have to be trained in various communication skills. There has also to be time for measures to support teambuilding processes. In the past the design of the yearly workshop day contained inputs of lecturers as well as methods to transfer knowledge into everyday practice. This year we introduced an electronic educational platform and applied the method Flipped Classroom. In this concept the acquirement of knowledge is mainly situated during an online learning phase preceding the workshop. It's based on the fact that persons in a learning process are highly motivated when they are often given individual feedback (Rheinberg 2012).

Project description
The e-learning elements are being communicated via an internet based platform (Moodle). The platform has two main goals: It is used for the preparation phase of the workshop. Secondly it's also working as a library containing useful documents which is always accessible.
For the preparation phase the learning objectives were communicated and various tasks were defined: 1. Reading a text on the main subject containing literature references 2. Posting at least one question/remark on the e-learning platform concerning the text 3. Watching a short film with a counselling interview 4. Identifying several positive and negative elements regarding the communication skills of the interviewer. The questions and remarks of the CTs were answered online. These discussions were visible for all the team members and they were asked to study them. During the workshop day various methods were applied to work further on the topics and to enhance team building. The focus here was on the development of a shared attitude towards the different roles that CTs are taking over.

Outcome or expected outcome
Compared to previous workshops the new concept helped focusing on exercising and reflection. Moreover it enhanced interactions between CTs and faculty members. Thirdly the gained time was used to introduce measures to support the team building process. The evaluation among CTs showed that the new methods were mostly appreciated, although this procedure increased the amount of time they had to invest.

Challenges
It was a challenge to introduce the various e-learning tools among users which are not all frequent users of internet based tools. This meant to establish easy access on the various platforms (e.g. video was on a different secured platform) and the visual guidance for the CTs on the plattform had to be as intuitive as possible. Regarding the preparation work before the workshop a good alignment with various material as well as clear timelines and exact verbalizations of the tasks and learning goals were time consuming. As the main platform should also serve as an always accessible library and tool to exchange information means also to keep it attractive and lively during the year.

Discussion
As the evaluation from all involved persons was mainly positive we keep using the e-learning tools as well as designing our workshops according to the flipped classroom method. For the further development we are looking into the variety of the used methods, focusing on possibilities to give more individual feedback on learning progression. Regarding the time consuming preparations we are also considering possibilities to use material developed in other contexts.

Reference
Rheinberg F. (2012). Motivation (8. Aufl.). Stuttgart: Kohlhammer

Development of a Wearable Electronic Sensor Array and Measuring Unit for Spine and Posture Analysis for Use with Standardized Patients in Medical Simulation and Education

Björn Krystek[1], Friedrich Ueberle[1], Stefanie Merse[2], Boris Tolg[1]
[1]University of Applied Sciences Hamburg, Germany; [2]University Duisburg-Essen, Faculty of Medicine, Essen, Germany
Bjoern.Krystek@haw-hamburg.de

Background
Undetected spinal injuries after a casualty can have severe implications on the patient's medical condition, especially when subjected to abnormal loads. During rescue missions and patient transport, these patients are exposed to an increased risk of secondary traumatization. Spine monitoring can help demonstrate critical movements and provide feedback to rescue workers or healthcare professionals. In specific exercises and simulation programs, rescue personnel can be trained for the interaction with patients with pre-existing spinal injuries. A small, unobtrusive system to measure spinal movement in medical simulation scenarios could be used to monitor and evaluate the participants.

Research question
This work is a feasibility study about the development of an unobtrusive spinal monitoring system that can be worn by a standardized patient (SP) without the other simulation participants becoming aware of the device. Aim of this study was to evaluate whether small gyroscopic sensors affixed to multiple positions along the patient's back can be used to measure and record detailed spinal movement.

Methods
The spinal monitoring system was developed using microelectromechanical (MEMS) gyroscopes and the Arduino platform for microcontroller programming. Multiple sensor elements were combined into a sensor array to retrieve inertial measurements from different positions on the patient's back. A computer algorithm was used to calculate differential movement between the base sensor (located on the patient's pelvis) and the remaining sensors (spread across the patient's back). Measurements were logged onto an SD card and visualized using a 3D model of the skeletal human upper body. Overall system usability was evaluated applying the sensor system to a test subject. Ease of use and connection of the system was noted by the test subject. A comparison of the output data and the real sensor orientation was done, overlaying a photographic image with the computer visualization. For this purpose, the sensors were mounted onto a bendable stand. Validity of these measures were tested for each axis independently. Additionally, a long-term data record (46 hours) was used to test the sensor stability.

Results
Usability of the system in its current development status shows room for improvement. The system is not small enough to be hidden underneath clothing and connection of the sensors requires the SP to lay perfectly still for the time of on-body calibration, which resulted in multiple attempts before data could be retrieved. The visual comparison showed identical leanings, perfect correlation was not tested. Validity of measures on the yaw axis shows almost perfect alignment with the real yaw. On the pitch and roll axes, the output was slightly below the real rotation. On all three axes the sensor output for the first 20 ° showed minor deviations. The output from the three individual sensors was almost identical. It was possible to gather constant data recordings for three sensors in ~150 ms intervals up to 46 hours. During that period all sensor readings started drifting apart at similar pace until they ended up completely reversed after about 24 h and returned to their initial values at the end of measurement.

Discussion
The collected data shows, that spinal monitoring using MEMS gyroscopes is possible. The on-body calibration process is very time-consuming and not up to its full potential. The sensors used in the proposed design are prone to sensor drift and may not be accurate enough for medical usage. The data processing algorithms have room for improvement on both the microcontroller and visualization part.

Conclusion
The study shows, that inertial measurements of the spine can be acquired using gyroscopic sensors. Further development and evaluation of other hardware components has to be done in order to ensure measurements with medical precision. For future iterations of this project, different hardware modules and software compensations have to be tested to account for the current limitations such as sensor drift and error of measurement. Further fields of application, such as feedback for SPs when exceeding a planned limited range of motion and uses in Ambient Assistant Living have to be considered in upcoming studies.

References
[1]W. Y. Wong and M. S. Wong, "Detecting spinal posture change in sitting positions with tri-axial accelerometers," Gait & Posture, vol. 27, no. 1, pp. 168–171, Jan. 2008. [2]M. D'Amico, R. Bellomo, R. Saggini, and P. Roncoletta, "A 3D spine & full skeleton model for multi-sensor biomechanical analysis in posture & gait," in 2011 IEEE Int. Workshop on Medical Measurements and Applicat. Proc. (MeMeA), May 2011, pp. 605–608. [3]W. S. Marras, F. A. Fathallah, R. J. Miller, S. W. Davis, and G. A. Mirka, "Accuracy of a three-dimensional lumbar motion monitor for recording dynamic trunk motion characteristics," Int. J. Ind. Ergonom., vol. 9, no. 1, pp. 75–87, Jan. 1992.

C4 : Centre Coordonné de Compétences Clinique : an interinstitutionnal partnership for the teaching of the clinical competences

Nadine Oberhauser
Haute Ecole de Santé Vaud, Switzerland
nadine.oberhauser@hesav.ch

The C4 is the result of an interinstitutionnal partnership established between HESAV[1], the FBM-UNIL[2], the hEdS La Source[3] and the CHUV[4] all based in Lausanne (Canton de Vaud). The project started a few years ago and the opening of the C4 is planed in 2020. Its aim is to promote the quality of health care, and develop the coordination and collaboration between health professionnals. Dedicated to simulation, the C4 will host about 700 to 1000 people per day, and allow an interprofessionnal approach and training of various care situations. The aim of the presentation is to enhance the interest and the complexity of the process and its aims.

[1] Haute Ecole de Santé Vaud, [2] Faculté de Biologie et de Médecine de l'Université de Lausanne [3] Haute Ecole de Santé La Source [4] Centre hospitalier Universitaire, Centre des Formations

A mixed method study to evaluate fairness, acceptance, feasibility, and educational impact of the involvement of elementary school children as standardized patients in a summative OSCE

Rabea Krings[1], Sabine Feller[1], Kai Schnabel[1], Sabine Kroiss[3], Maja Steinlin[2], Sören Huwendiek[1]
[1]University of Bern, Switzerland; [2]University Children's Hospital, Inselspital, University of Bern; [3]University Children's Hospital Zurich – Eleonorenstiftung
rabea.krings@iml.unibe.ch

Background
Assessment drives Learning (Cilliers et al. 2010). To enhance the educational effect of learning the handling of children as patients, it is necessary to have appropriate education, but also a realistic assessment method. There is little research concerning children as standardized patients inside this assessment process. Therefore, the goal of the present study is to evaluate perception, acceptance, fairness, and feasibility of an OSCE including children. Furthermore, the educational impact for students was analyzed.

Methods
The regular summative OSCE for fifth year medical students in Bern took place on six consecutive half days in April 2016. 191 students were tested in nine different OSCE stations – elementary school children were engaged as standardized patients for the pediatric station. With regard to Darling and Bardgett (2013), by individual interviews, children were asked afterwards which aspects they liked and disliked in taking part in the Paediatric OSCE. Moreover, the usefulness of children in an OSCE was analyzed with concern to realism, fairness, feasibility, and acceptance. In addition, the educational impact on students' learning strategies was explored. Raters were interviewed in focus groups or interviews to get a broader picture – especially with regard to fairness aspects.

Results
Children were asked during mini-interviews if they were satisfied that they could act as SP. Most of them were really happy (5-point Likert scale; 1 did not like it at all – 5 liked it very much; Mean = 4.6, SD = .70). In focus groups and interviews, raters' views were recoded. They all agreed that the pediatric station was perceived as fair, feasible and realistic. Students well accepted the involvement of children SPs and that they perceived it as very realistic and as a good way to show their skills. 53% of the students expected a pediatric station where children SPs were involved. Of these 53%, 30.6% mentioned that this expectation had an effect on their learning.

Discussion
The goals of OSCE examination are to have comparable and reproducible clinical situations to judge not only knowledge but especially clinical feasibilities to handle the situation and last but not least the patient. Thus, including children in testing this setting in pediatrics seems mandatory and worth the significant additional workload in performing this examination.

Conclusions
Results show that the pediatric station was fair, feasible and realistic. From the view of all groups (students, raters, children), all participants were satisfied with the new approach of children SPs in pediatric OSCE stations. Children enjoyed participating in this setting, raters well accepted the process and evaluated the pediatric OSCE station as fair and feasible, and students perceived this station as fair and acceptable.

Take Home Message
Children are special patients and need special treatments – this should also be reflected in OSCE examinations.

References
Darling JC, Bardgett RJM. Primary school children in a large-scale OSCE: Recipe for disaster or formula for success? Medical Teacher. 2013;35:858-861.
Cilliers FJ, Schuwirth LW, Adendorff HJ, Herman N, van der Vleuten CP (2010): The mechanism of impact of summative assessment on medical students' learning. Adv Health Sci Educ Theory Pract. 2010 Dec;15(5):695-715.

German Translation and Validation of the "Interprofessional Attitudes Scale"

Tina Pedersen[1], Eva Cignacco[2], Simon Fischer[1], Jonas Meuli[1], Robert Greif[1]
[1]Department of Anaesthesiology and Pain Medicine, Bern University Hospital, University of Bern , Switzerland
[2]University of Applied Sciences, Health Department, Bern, Switzerland
tina.pedersen@insel.ch

Background
Interprofessional collaborative practice is an unavoidable and significant factor in today's health care provision. To assess interprofessional attitudes among health professional students, the Interprofessional Attitudes Scale (IPAS) was developed in the USA(1). This scale consists of 27 items with five subscales: teamwork, roles and responsibilities; patient-centeredness; interprofessional biases; diversity and ethics; and community centeredness. Unfortunately no such scale was available in German.

Research question
The aim of this study was to translate the IPAS into German and thereafter validate the German version of IPAS.

Methods
The first step was to translate the IPAS from English to German according to the ISPOR guidelines, with forward and backward translations(2). Secondly, cognitive interviews with midwifery students, anaesthesia nurses, and physicians were conducted according to the method of G. B. Willis(4). The goal of these interviews was to rephrase or delete items in the German version, if they did not make sense or were unclear to potential users. The cognitive interviews were followed by the calculation of the Content Validity Index (CVI) for each item (item-CVI) and for the whole scale (scale-CVI) (4). To uncover the underlying structure of the items and create meaningful subscales, we performed an explanatory factor analysis following the recommendations by Osborne et al.(5). Finally, a homogeneity testing calculating Cronbach's α for single items, for subscales, and for the whole scale was performed.

Results
After the forward and backward translation, the study group discussed the wording of all items until consensus was found. The cognitive interviews resulted in minor rewriting of the translated items to improve understanding. The first item-CVI's ranged from 0.33 and up to 1.00, while the Scale-CVI achieved a satisfactory result of 0.79. The explanatory factor analysis revealed that three items did not fit in the German version, and the German IPAS was rearranged within three subscales; 1) teamwork, roles and responsibilities; 2) patient-centeredness and 3) health care provision. The subscale interprofessional biases with three items was deleted due to low factor loadings and cross-loadings, and the items of the subscale diversity and ethics were re-arranged into other subscales. After factor analysis and re-arrangement of the items, the S-CVI reached an index of 0.82. Cronbach's α was 0.88 for the subscale teamwork, roles and responsibilities; 0.78 for the subscale patient-centeredness; and 0.85 for the subscale health care provision. The Cronbach's α for the overall scale was finally 0.87.

Discussion
After proper translation of the original English version into German, we found a low Cronbach's α for the subscale interprofessional biases, which was a comparable finding with the validation trajectory of the English scale (1). Furthermore, this subscale achieved low CVI scores and in the explanatory factor analysis the items in this subscale loaded on a variety of different other factors. For that reason we decided to delete the entire subscale. This resulted in the final German version containing 24 items to assess interprofessional attitudes in health care.

Conclusion
Based on a rigorous validation process the German Scale "Haltung zur Interprofessionalität" (IPAS_German Version) provides a tool to reliably assess attitudes towards interprofessionalism among different health care professions in the German speaking countries.

References
1. Norris J, Carpenter JG, Eaton J, Guo JW, Lassche M, Pett MA, et al. The Development and Validation of the Interprofessional Attitudes Scale: Assessing the Interprofessional Attitudes of Students in the Health Professions. Academic medicine : journal of the Association of American Medical Colleges. 2015;90(10):1394-400. 2. Wild D, Grove A, Martin M, Eremenco S, McElroy S, Verjee-Lorenz A, et al. Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes (PRO) Measures: report of the ISPOR Task Force for Translation and Cultural Adaptation. Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research. 2005;8(2):94-104. 3. Willis GB. Cognitive Interviewing: A Tool for Improving Questionnaire Design. Thousand Oaks, California: Sage Publications; 2005. 4. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Research in nursing & health. 2007;30(4):459-67. 5. Osborne J. C, A. Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. Practical Assessment, Research & Evaluation. 2005;10(7).

Measures to reduce rating differences in (identical) OSCE stations

Noemi Schaffner
Bern University of Applied Sciences, Switzerland
noemi.schaffner@bfh.ch

Background
In the "Bachelor of Science in Nursing" program at the Bern University of Applied Sciences (BFH), clinical exams, like Objective Structured Clinical Examinations (OSCE), are core to promote and ensure a high quality performance in clinical practice. Nursing students pass therefore three OSCEs during their studies. Normally an OSCE at the BFH consists of nine stations, which are conducted parallel on two floors with the goal to assess more students at the same time. Consequently for each station with the same scenario, two examiners and two standardized patients (SP) are needed, each of them responsible for an identical station on a different floor. Systematic measurement error can arise from this approach. This variance can be introduced by the performance of the SPs or the raters. For instance one examiner could tend to rate all students performances more stringent while the other tends to be more lenient. As a result students who are rated by the second rater get better grades than those rated by the first one. It is important to take measures to control the rater effect, starting by monitoring the rater differences.

Project Description
Different measures are taken to ensure the quality of the OSCE and to reduce possible, rater variance. Firstly, examiners and SPs who are responsible for the same OSCE station discuss and review each item on the checklist and ensure therefore standardization. Secondly, every station is statistically analyzed to detect rating differences between raters. By this means stations with statistically significant rater differences are identified. However with this analysis it isn't possible to identify the problematic items. Therefore we, thirdly, analyze rating differences on each item of the "problematic" station.

Outcome
The results of the analysis are reported to the person responsible for the OSCE. This person informs all raters and SPs who are involved in the station with rating differences. Possible causes which lead to the differences are discussed (different understanding of the item, different performance of SP, ambiguous item wording) and measures are taken to eliminate them.

Challenges
Differences in OSCE outcomes can never only be explained by differences in raters or SPs. They can also simply be explained by differences in student's performances. There is always a chance that all low-performing students are, by coincidence, assigned to the same floor. Nevertheless it is important to reduce differences due to this specific OSCE procedure.

Discussion
The analysis undertaken to ensure quality of the OSCE and to reduce rating differences are constructive. Raters in particular are eased by the knowledge of possible causes for the differences in their rating and are motivated to decrease discrepancies. Moreover this practice ensures that OSCE items are continually reviewed and improved.

Quality Control of SP Performance in high stakes OSCEs using online software on tablet computers

Beate Gabriele Brem, Markus Dahinden, Regina Christen, Sandra Wuest, Kai Philipp Schnabel
Institute for Medical Education, Switzerland
beate.brem@iml.unibe.ch

Introduction
Since the quality of patient portrayal of standardized patients (SPs) during an Objective Structured Clinical Exam (OSCE) has a major impact on the reliability and validity of the exam, quality control should be initiated(1). At many sites SP trainer check on SP performance more or less systematically. However, the compilation and systematic analysis of the data is challenging for the most.

Project Description
In our program we constantly strive to improve and simplify our quality control for SP performance. In 2013 we developed a list of 22 items concerning the quality of SP performance. During high-stake exams on average 200 observations were made. The list was filled in on paper and digitized for analysis, which took approximately one full day of work per exam. Moreover, once lists from a different site got lost in the mail. Thus, we were seeking for a way to simplify this process.

Outcome
In summer 2016 we tested a commercially available software called SurveyGizmo(2) on tablet computers. In contrast to similar tools tested before, this software enables a rater to do multiple ratings on the same and on different SPs, as well as allowing many raters to rate the same SP at the same time. Although SurveyGizmo is an online tool, an offline modus is available for rating SPs while not being connected to WiFi. The data can be uploaded later. The usability of the tool is high. When working with different sites, it was easy to explain the use by mail or telephone. The acceptance of the tool was high even with staff not experienced. After the collection of the data, the day that was spent digitizing the data when working with paper, was not necessary, since all data were already digital. We simply had to reverse the encryption of SP names that was applied for data safety reasons.

Conclusion / Discussion
The high usability of the software and the time saved in digitizing the data after collection convinced us to keep working with that tool in the future.

References
1. Adamo G. Simulated and standardized patients in OSCEs: achievements and challenges 1992 – 2003. Medical Teacher. 2003;25(3):262 – 70. 2. http://www.surveygizmo.com [Oct. 28th 2016].

Objective structure Examination - OSCE in Physiotherapy: What is the difference between communication competence and therapeutic climate?

Beatrice Buss
University of Applied Science Bern, Switzerland
beatrice.buss@bfh.ch

Background
The Objective Structured Examination (OSCE) measures the clinical skills in medicine. Checklists or global assessments criteria are used. Since 2006 OSCE, to measure clinical competence, is used by the bachelor physiotherapy course at the Bern University of Applied Sciences. The valuation is determined by global criteria – communication, therapeutic climate, technical skills and clinical decision-making ability. The purpose of this study was to determine if there is a difference in rating between therapeutic climate and communication.

Methods
This study investigated the ratings of the items communication and therapeutic climate. 50 students in the 1th Semester and 49 students in the 5th semester were analyzed. The item communication was rated by an examiner and the other item, therapeutic climate, by a standardized patient. Data were analyzed using the SPSS program (Version 2015).

Results
Statistically significant differences were not found in the ratings of the therapeutic climate and the communicative competence for physiotherapy students in the 1th Semester on 8 stations with a duration from eight minutes (p=0.16 to p=.956). In the 5th Semester there was no statistically significance on 3 Stations with a durance of twenty minutes (p=034 to p= 0.485), and 2 Stations from eight minutes.

Conclusion
In short stations we couldn't find a difference between communication competence and therapeutic climate. The results were scattered among the single stations. It could be possible that in short stations the student is not able to establish a good relationship with standardized patients. However, in long stations the ratings by examiners were not statistically significant different to the short ones either. The rating of these items are independent and do not affect each other. Therefore the rating from standardized patients is important for student's feedback.

Partial Evaluation of an interprofessional simulation based Training

Sarah Kramer[1], Toni Wäfler[1], Dorothée Eichenberger[2]
[1]Fachhochschule Nordwestschweiz, Switzerland; [2]Berner Fachhochschule, Switzerland
sarah.kramer@students.fhnw.ch

Background
Amongst the various forms of education, simulation based trainings are very costly and time-consuming regarding both training design as well as implementation. Nonetheless they are becoming more and more common in medicine and healthcare. In 2013 at the simulation center of the university hospital Bern, an interdisciplinary simulation based training developed for midwifery and anesthesia students was carried out as a pilot for the first time. In the year 2015/2016 it was definitely implemented into the bachelor curricula of midwifery and anesthesia studies. The aim was to enhance the quality and effectiveness of the two disciplines' interdisciplinary collaboration. This year (2016), the fourth generation of midwifery students participated in the training. During half a day a group of students from both disciplines were confronted with simulations of different scenarios in which the pregnant women or the unborn child went through life-threatening crises. During these simulations some students participated and others observed the scenario from the debriefing room. After each simulation a video-assisted debriefing was provided, facilitated by a senior midwife and senior anesthetist. Against this background the aim of the present study is to measure the midwifery students' subjective perception of the training's effectiveness. This measurement is based on Kirkpatrick's (1994) model of training success . It distinguishes four levels on which success can be measured: 1. Reaction (Did the participants like the training? Did they find it useful?), 2. Learning (Did they learn something?), 3. Behavior (Do they show the desired behavior at work?), and 4. Results (Does the behavior change trigger the intended outcome?). Each lower level of this model is a precondition but not a guarantee for reaching the respective higher level.

Research question
The research question of the study is: What is the midwifery students' subjective perception regarding Kirkpatrick's levels reaction, learning and behavior?

Methods
With help of a before- (n = 41) and after- (n = 34) training questionnaire variables from level 1 (perceived usefulness and liking) and 2 (perceived self-efficacy and instrumentality regarding the training) of Kirkpatrick's evaluation model were measured of the midwifery students who were trained in 2016.
Half-standardized interviews were held with midwifes (n = 5) to measure level 3 (perceived transfer of trained behavior). The midwives interviewed were also from the training cohort 2016. At the time the interviews were held they had completed the theoretical part of their studies and worked in an internship in hospitals.

Results
The majority of the participants found the training very useful and likable The medians (with inter quartile range in parentheses) for usefulness and liking were 6.67 (6.33-7.00) and 6.38 (6.00-7.00), respectively. There was a significant effect for self-efficacy, $t(32) = 5.09$, $p < .001$, $d = 0.74$, 95% CI [0.44, 1.04] and instrumentality, $t(33) = 4.95$, $p < .001$, $d = 0.74$, 95% CI [0.44, 1.04] with higher scores in the post-measurement.

Conclusion
The positive tendency on the indicators measured on level 1 and 2 suggests a certain success of the training. Additionally, the variables measured on level 2 (learning) seem to be promising indicators for level 3 (behavior). Future studies that investigate larger samples (especially for the behavioral measures) and incorporate the aenesthesiologists' views might further elucidate the role of these indicators regarding the success of simulation based trainings.

Medical students' attitude and skill assesment with the standardized patient methodology

Christina Silva Costa Klippel, Rosangela de Almeida Castro Amorim, Carlos Filipe Pimenta, Marília Alves Assumpção
Davi da Silva Motta, Iuri Amorim de Morais, Ohana Natureza, Thiago Zandonay
Estácio de Sá University, Brazil
ck074@hotmail.com

Background
The venipuncture is a common and necessary procedure for infusion therapy. In Brazil, medical students receive training on venipuncture at the second grade of medical course. Besides the technique itself, they must be aware of how to approach the patient and also the best way to give information on the procedure in order to provide medical care. With the standardized patient teachers can train the students to perform medical procedures in a similar situation to real life.

Methodology
Randomized and controlled trial. The purpose of the study was to evaluate clinical skills and students attitude while performing a medical procedure using the standardized patient methodology.
The sample consisted of 14 medical students at an University in Rio de Janeiro. Pre- and post-tests were used as theoretical assessment tools. The selected theme for the trial was peripheral venipuncture (PVP), because it demands theoretical knowledge, practical skills and professional attitude towards the patient.
All participants attended an interactive lecture on the procedure. Participants were divided randomly into two groups: Control and Experimental Group. The Control Group performed the practical activity in the traditional way of teaching, practicing PVP technique in low-fidelity mannequins under the guidance of a instructor.
The Experimental Group underwent the practical activity with the standardized patient performed by two students from the Theatre Course, according to two contextualized cases. The actor was connected to a mannequin arm, playing the role of a patient that should receive infusion therapy. The students should ask patient's permission to perform the venipuncture and explain him the procedure. The actors made some questions about the treatment. The students should proceed the PVP in the mannequin arm connected to the actor. For skills assessment, a third clinical case was created with the standardized patient in the same way described for the Experimental Group, in which all participants were supposed to proceed the PVP.
Skills assesment was recorded in a checklist form regarding the ten steps of the PVP technique.
Attitude aspects were observed according to a Likert scale, including three items: humanized, defensive and indiferente attitude, with scores 2, 1 and 0, respectively.

Results
Concerning the hit rate of theoretical evaluation, the Experimental Group presented a 7.5% higher score. As for the hit rate in practical assessment, the Control Group showed a 2.9% higher score. The "humanized attitude" presented a higher score of 14.2% over the others.

Discussion
The standardized patient simulation is currently a resource for training medical students. In a controlled environment it allows the improvement of technical and behavioral skills as well as leadership, teamwork and crisis management in similar situations to real life. Thus effectively contributes to safety and improvement of patient care.

Conclusion
The methodology of the standardized patient simulation shown to be effective for the development of skills and improvement of attitudes of medical students.

Are Dream Teams made, not born?

Leen Roes, Sarah De Schepper, Stef Janssens
Karel de Grote University College, Belgium
leen.roes@kdg.be, sarah.deschepper@kdg.be

Introduction
The IOM's (Institute of Medicine) report on patient safety suggests that healthcare is not only costly and ineffective, but also routinely causes preventable patient harm. One in ten patients is affected by potentially avoidable error resulting in damage. The most common sources of error are inadequate non-technical skills, such as communication, teamwork and leadership. Particularly, emergencies demand fast, high-stakes decisions in stressful, complex and rapidly evolving situations, which make them susceptible to error. Therefore, the IOM called for the implementation of CRM (Crew Resource Management), an interprofessional team training, in healthcare to address these non-technical skills. Auspicious work has been done to implement CRM in operating theatre environments, trauma teams and obstetrics. However, studies on the development of a generic training for non-technical skills of interprofessional emergency teams in general are sparse. As a first step in the development of such a generic training, we conducted a needs assessment to examine the self-perceived needs, concerns, attitudes and opinions regarding CRM and non-technical skills of healthcare workers who regularly face emergency situations.

Objectives
The objective of this part of the CRMstudy is to assess the attitudes, concerns and needs toward a simulation-based CRM team training.

Methods
A multi-site cross-sectional research method was applied. Physicians, midwives and nurses working the Dutch speaking part of Belgium (Flanders) in environments where emergency situations regularly occur (emergency and intensive care units, obstetric departments, operating theatres) were invited to complete an online survey that included Likert scales and short answer questions.
Based on recent literature, the survey was constructed in Qualtrics®, and distributed via email to the eligible units of all acute care hospitals and university hospitals across Flanders. A poster containing an embedded web link was provided to inform and encourage possible eligible participants. Consecutively, we called upon various professional associations for additional dissemination of the questionnaire among their members. Data were collected between December 2015 and March 2016.

Results and conclusions
The data have already undergone preliminary analysis and show interesting results. However, additional analysis is required. The complete results will be presented at the conference.

Simulation and skills-training as an introduction to the internship year: Course design and participants'self-assessment

Stephanie Herbstreit, Cynthia Szalai, Margarita Ivanova
Medical Faculty University Duisburg-Essen, Germany
stephanie.herbstreit@uk-essen.de, cynthia.szalai@uk-essen.de

Background
Medical students who have successfully completed their final exams are expected to be competent in both the clinical and affective domains. At that time of education medical students have a vast theoretical medical knowledge. However, due to directed interviews with last year students at our faculty, with a traditional teaching system, there seems to be a huge insecurity regarding their clinical knowledge and they remark that they are not able to assess their individual practical skills in the internship year, particularly in acute medical scenarios.

With our new Simulation and Skills-Training course as an introduction to the internship year we have the aim to improve the overall clinical competence including clinical and affective domains.

Research question
The objectives of our study were to observe if the course leads to any improvement of the personal assessment of the acumen and clinical skills of the students and how students evaluate the course.
Methods: At the beginning of the internship year students received a new teaching course that was aimed not only as preparation for the final oral and practical exam but also improving overall clinical competence for new inexperienced doctors. The course entailed realistic simulated scenarios involving simulated patients and/or high fidelity manikins with accompanying structured feedback sessions guided by video replay. Following the feedback students were enabled to practice various skills and procedures related to the simulation. Under these controlled conditions in a safe environment, students were allowed to not only experience common medical situations but to navigate these situations using their own clinical judgment.

To observe any improvement of personal assessment and acumen students received a questionnaire asking to detail an assessment of their own clinical competence, regarding basic clinical skills, valuation of results, team working and organizational competence, decision making, problem-solving and communication skills. The questionnaire included the query of personal expectations regarding the upcoming course, expected value and knowledge growth, importance of several skills and requests of the course. Students were also asked to take a short pre-test online which consisted of multiple choice questions (MCQ) relating to the upcoming simulated clinical scenarios. Directly after the course students were again asked to complete a similar second questionnaire on personal assessment of clinical competence including questions evaluating the course regarding over all satisfaction, value, knowledge growth, exemplarity, problem-free simulation and relevance for the final oral and practical exam. They were also asked to take a short post-test MCQ exam online. A third personal assessment of clinical competence was again required at the end of the internship year.
All data was anonymised and tabulated on an SPSS format. 49 students for the questionnaire evaluation and 34 students for the pre- and post-test MCQ exam were included.

Results
The perceived clinical competence improved opposed to the decreasing clinical acumen shortly after the final exams, surveyed by the pre and post short MCQ exam.
The course obtained an outstanding positive evaluation regarding overall satisfaction, value, relevance, exemplarity, problem-free simulation and the students requested more simulated cases in progress of the internship year.
The inquiry regarding the structured feedback showed a high satisfaction of the student-groups.
Discussion: A simulation and skills training course as characterized, enhances the personal assessment of students for the internship year. Limitations of this study are multiple. No clinical patient outcome data were collected and no evidence of the quality of patient treatment has been gathered. No control group was consulted.
Conclusion:
A simulation and skills training course as an introduction to the internship year enables an improvement of students' personal assessment regarding practical and communication skills. In addition objective improvement of patient outcome and quality of patient treatment has to be evaluated.

Hybrid Simulation for teaching and learning the Heimlich maneuver to medical students

Christina Silva Costa Klippel, Aline Széliga, Barbara Munhoz Werneck, Catarine Torquato Barcellos, David Simões Manhães
Estácio de Sá University, Brazil
ck074@hotmail.com

Background
The airway obstruction is a common and potentially fatal event. The victim must receive immediate help. The Heimlich maneuver, described by Henry Heimlich in 1974, consists of a prehospital care method of clearing the upper airways. As part of the medical curriculum, the procedure is taught to students at the first year of medical school. The Hybrid Simulation consists of a methodology that combines the use of standardized patients to a mannequin or anatomical model for teaching medical procedures.

Research question
Is Hybrid Simulation effective for teaching the Heimlich maneuver to medical students?

Methodology
The study took place at the Simulation Centre of the Medicine School in Rio de Janeiro city. The study included 21 students from first to third year of medical school. Participants attended an interactive lecture on Heimlich maneuver and participated in a Hybrid Simulation activity. Cases of airway obstruction in infants, children and adults were introduced so that participants could take care of the victims.
For acute airway obstruction in infants and children, instructors played the standardized patients performing the worried parents of an obstructed child calling for help. Concerning care for adults, instructors performed the victim from airway obstruction. Participants were supposed to carry out the Heimlich maneuver in low fidelity mannequins.
Pre and post tests were used for student's assessment. For skills assessment, instructors registered the student's hit rate in a checklist form. The form included twelve steps of the procedure for the care of newborns, children and adults. They also evaluated behavioral aspects and crisis management ability.

Results
Participants showed an increase of knowledge on the subject. In the theoretical exam, 90.4% of participants showed a higher score in the post test hit rate. In practical assessment, among the twelve steps of the evaluation, 38.1% of participants presented between 6 and 8 hits and 61.9%, between 9 to 12 hits ($p < 0.01$).

Discussion
The hybrid simulation is currently a resource for training medical students. In a controlled environment it allows the improvement of technical and behavioral skills as well as leadership, teamwork and crisis management in similar situations to real life.Thus effectively contributes to safety and improvement of patient care.

Conclusion
Hybrid simulation shown to be significantly effective for memorizing the sequence of Heimlich maneuver and for improving student attitudes in medical course. The study suggests that educators should consider the methodology for a comprehensive educational experience. Further studies should replicate the method in other disciplines.

Simulation of Septic Arthritis management in medical undergraduate education

Christina Silva Costa Klippel, Rafael Augusto Dantas Prinz, Artur Shioji, Luis Moliterno, Walter Farcks, Lúcia Helena Antunes Pezzi
Estácio de Sá University, Brazil
ck074@hotmail.com

Background
The joint infection is considered a serious illness and requires accurate diagnosis and prompt treatment. The diagnosis should be based on joint aspiration in order to identify the offending germ and to formulate the treatment plan. The physician should be aware of the joint radiological evaluation and joint aspiration technique and also of the inflammatory changes that can occur in the synovial fluid.

Method
The purpose of the study was to assess medical undergraduate's performance in Septic Arthritis management in Orthopedics in a Rio de Janeiro University, Brazil.
The study included 26 medical students from Orthopedics and Traumatology subject. Students attended a lecture on the theme and received a detailed guidance script on evaluation and treatment of patients affected by septic arthritis. Using the Standardized patient Methodology, the pathological condition was presented with an actor performing the patient's role characterized by Moulage technique. The students provided patient care with radiological and laboratory evaluation. After determining the diagnostic hypothesis, joint aspiration was trained in anatomical models created and developed by the teachers. At the end of activity, the students took part in the Debriefing session. At the time of practical assessment, students were evaluated according to the joint aspiration technique performed in the anatomical model, evaluation of the collected fluid, interpretation of radiological exam, the diagnosis and the therapeutic plan proposed. The students' correct actions during medical care were recorded by teachers in a structured assessment instrument (check list). The students' grade was determined according to four levels of correct actions: regular (< 7.0 points); good (7.0 -7.9 points); very good (8.0-8.9 points); and excellent (9.0-10 points).

Results
38.3% of students achieved the very good grade; 19.2%, the regular grade; 19.2%, the good grade and 23.3%, the excellent grade.

Discussion
Septic arthritis is a rheumatologic emergency as joint destruction occurs rapidly and can lead to significant morbidity and mortality. Accurate diagnosis can be particularly challenging in patients with underlying inflammatory joint disease. Medical students must be able to consider diagnosis and antibiotic management, joint radiological evaluation, joint aspiration and drainage technique as well as indication of surgical treatment.

Conclusion
Simulation with the Standardized patient Methodology associated with practical activity proved to be efficient for the learning process of Septic arthritis management for undergraduate medical students attending the Orthopedics subject.

Sequential simulation: an innovative way for teaching assessment of the brain injuried patient and their families

Josée Des Granges Zimmermann, Corinne Gaudin, Christophe Gueniat, Armelle Tagand, Sophie Lawrence
HESAV, Switzerland
josee.desgranges@hesav.ch

Background
In the last year of the Bachelor of Nursing curriculum, students have optional modules. The module "nursing care in acute care setting" focuses on the development of evaluation/ assesment and clinical judgment skills in unstable situations. The nursing assessments are decided with the patient, the family and the medical team.
In simulation, students often deal with a patient outside of his family and social context and in a limited timeline (simulated patient S.P.). This isn't the reality of a clinical context and therefore they cannot enact fully their role. In perspective of developing nursing care for stroke or brain injuried patient and professional support for their families, we have used a sequential method, which brings continuity in time and in care. The choice of this clinical case comes from epidemiology. These two related simulations represent as well as possible the nursing practice. For chronic diseases, the importance of including families has been largely documented in the nursing model of Calgary. The sequential simulation seem very well adapted to our teaching objectives. Nevertheless, we've never surveyed our students and very little literature exists on the subject.

Project description and methodology
Our project includes 33 students and we use a semi-structured multiple choices questionnaire to obtain feedback. The questions investigate: the actual learning during the two simulations; and how the two simulations complement one another and make the student more professional in the context of acute care. In the first simulation, the students deal with the assessment of a stroke patient. The S. P. is trained to appear aphasic and hemiplegic (flaccidity state). At the end of the simulation, he won't give any feedback. In the second simulation, the students also meet with a member of the family of the simulated patient. Therefore at the end of the simulation, the student will get feedback from the family member. The questionnaire investigates the difficulties the students experience during the two simulations, the lessons learned, and how the sequential simulation helps them achieve their professional objectives.

Expected results and discussion
The questions asked by the family make the students aware of the little knowledge they have about the clinical case of the patient. Our students don't have strong professional experience, and they don't always feel entitled to answer the family's questions. From our experience with the students, we think that besides learning from the difficulties of each simulation, the added values of the sequential simulations are:
1) The student feels more directly involved in the caring of the stroke patient (evaluation of his motricity, communication abilities…)
2) He integrates better this experience in the meeting with the family. This way, the student develops his professional abilities globally (towards the patient and his family) in a secure context.

Challenge
Sequential simulation is a good tool to develop professional skills. For the trainer, good animation skills are required and ability to debate different types of problems: somatic, communication, family and social. The 2 scenarios have been written at the same time to ensure the consistency and credibility of the simulated cases.
Training S.P. to appear hemiplegic was challenging. They were trained to be in a flaccidity stage instead of the real spastic stage since spasticity cannot be easily simulated. The challenges for the S.P. were to have a good understanding of their pathology and to act out their motor and communication impairments. The challenges for the simulated family members were to relate to the simulated patient like they've known each other and they really care. Then, they could feel involved and ask the right questions.

Look alike drugs for training in nursing education

Anna Butscher, Urs Beat Schär, Claudia Schlegel
Berner Bildungszentrum Pflege, Switzerland
anna.butscher@bzpflege.ch

Introduction
For many years, in order for students to learn how to prepare, control and correctly administer medications, nursing schools in the region of Bern worked with real drugs. The schools would often use expired medications, which they obtained from hospitals. While these were stored in lockable drug cabinets, there was no monitoring of inventory before and after teaching sessions. It was furthermore mostly impossible to check expiration dates in any meaningful way when preparing medications, as many of them had long ago expired.

Intervention
One year ago, the Bern Centre of Higher Education in Nursing switched to so-called look-alike medications for practice purposes. Look-alikes are medications whose name differs only slightly from the original. The pills and the software were purchased from a US company, making it possible to produce look-alike medications as required for teaching settings. The self-produced drugs only vary slightly from the original in name and their packaging is also modelled on the original. Students are now able to practise medication management using a full range of realistic look-alike medications.

Results
First experiences have shown that students are visibly enjoying handling the new look-alikes and that they are able to practise how to prepare, control and administer medications without restrictions.

Improving Non-Technical Skills of Helicopter Emergency Medical Services - a Comprehensive Simulation Program

Sabine Nabecker[1], Stefan Lötscher[1,2], Roland Albrecht[2], Yves Balmer[1], Robert Greif[1], Lorenz Theiler[1,2]

[1]Department of Anaesthesiology and Pain Therapy, Inselspital, Bern University Hospital, University of Bern; [2]Swiss Air-Rescue Rega, Zurich, Switzerland

sabine.nabecker@insel.ch

Background

Mandatory crew resource management trainings in flight simulator and regular use of checklists are established in aviation. Simulation trainings were introduced in the last decades in medicine especially in the care for the critically ill patient. The Swiss Air-Rescue (Rega) Helicopter Emergency Medical Services (HEMS) consist of a pilot, a paramedic/HCM (HEMS crew member) and an emergency physician. These interprofessional crews perform at highest professional standard. To improve not only technical emergency medicine competencies, a comprehensive simulation program was started in 2015, focusing specifically on non-technical skills.

Project description

Simulation based training was organized at 3 different centers for the Rega staff: at the Bern Simulation- and CPR Center (BeSiC) at the Bern University Hospital; the Swiss Institute for Emergency Medicine (SIRMED) in Nottwil, Switzerland and the Maquet extracorporeal membrane oxygenation (ECMO) and intra-aortic balloon pump (IABP) training center in Rastatt, Germany. The two Swiss simulation centers offer a 1-day critical resource management simulation on high-fidelity manikins in typical, complex emergency medical situations. Crew members (paramedics and physicians) participate once per year. The aim is to train team cooperation in life-threatening medical emergencies while applying effective leadership and communication. Special focus lies on dynamic decision-making and situation awareness under time pressure and stress. After each simulated scenario structured video-assisted debriefings allow for deeper learning and the elaboration of an action plan for further improvement of the crew performance in and out of the helicopter. The center in Germany provides a 1-day simulation of critical incidents in ECMO and IABP use during helicopter transport. Furthermore, to maintain knowledge and skills during real-life emergencies, the entire HEMS crew (pilot, paramedic and physician) regularly trains low-fidelity simulation based advanced and basic life support at their helicopter bases 4 times per year. In these short (30 minutes) training sessions the entire crew including the pilot trains together on selected scenarios. As these trainings are implemented in the daily routine, they provide an excellent possibility to refresh knowledge and non-technical skills in the spare times between missions.

Outcome

In so far 20 training session, 160 participants trained in these inter-professional simulations in teams of 8-10 participants per training. At BeSiC, 96% (2015) and 98% (2016) of participants rated the course as "very realistic", and 92% (2015) and 91% (2016) of participants were confident to apply the newly acquired content in their daily clinical practice. At SIRMED, 94% (2015) and 93% (2016) rated the course as "very realistic", and 93% (2015) and 90% (2016) were confident in transferring the content to their daily practice. Likewise, the critical incident course about ECMO and IABP in Rastatt was rated as "very realistic" by 96% (2015) and 95% (2016) of the participants. Overall, 90 to 100% of participants in all simulation trainings would recommend these inter-professional simulation trainings to colleagues.

Challenges

The simulation-based education program for the Switzerland-wide operating Rega HEMS started successfully. While the current scenario trainings mainly focused on the interfaces between preclinical setting and hospital or between hospital and transfer setting, during the next 2 years simulation trainings will additionally focus on critical incident scenarios taking place within the helicopter, the jet airplane and the ambulance vehicle. In the next few months, the simulation program will also expand to include jet crews and Rega emergency dispatchers, but not yet pilots. Additionally, simulation trainings together with cardiovascular perfusionists are planned.

Discussion

Interestingly, while simulation training is already commonly associated with aviation, it is still not ubiquitously applied to rescue staff in HEMS organizations. The described high-fidelity simulation program focusing on critical incidence simulation of emergency medical situations has the potential to improve patient care by reflecting human factors under extreme rescue situations. It needs to be investigated whether these trainings are capable to transfer those communication and leadership skills into clinical practice. If simulation-based training of HEMS emergency interventions result in better team performance and improved task management, patients' care will improve. This also implies behavioral changes that usually need years of on-going training. A simulation program such as the one described might be one possible way to foster such changes.the success of simulation based trainings.

Evaluation of a Mass Casualty Incident (MCI) from the Simulation Patients' Perspective using a Questionnaire

Stefanie Merse[1], Margarita Gestmann[2], Louisa-Marie Pokriefke[3], Marc Schütte[4]
[1]Universitätsklinikum Essen, Germany; [2]Universität Duisburg-Essen, Germany; [3]Universität Duisburg-Essen, Germany; [4]HAW Hamburg, Germany
stefanie.merse@uk-essen.de

Background
In Germany real MCI simulations are conducted regularly. Routinely the process flows of rescue services were observed and evaluated alongside. Simulation patients (SP) were questioned about their assessment and experience in the context of the MCI 500 major training at the Berlin Airport in April 2016.

Question
SP have not been subjected to structured questioning about their assessment and their experience as participants in realistic MCI simulations until now. A questionnaire (Q) for the SP survey was especially developed and utilized for the first time. The main issue of the research was whether a Q for the SPs' subjective assessment could contribute to a gain of knowledge for a MCI.

Methods
After concluding the MCI 500 simulation the SP were questioned simultaneously and retrospectively. The evaluation was conducted at a central location by the means of a questionnaire. Overall 31 items were collected using the five-level Likert-type scale regarding the following topics:
1. First aid at the place of action
2. Transport to first care treatment location,
3. Care for the physically non-injured persons
4. Cooperation among the rescue forces
5. Personal impressions of SP

The Likert-type questionnaire contained five control items. To identify dispersion parameters, frequency distribution, and central tendency (median, midpoint) a univariate descriptive data analysis was used as method.

Results
The SP group (n = 260) consisted of 70% male and 30% female attendants of police academy and police officers. The age peak for the group lay between 18 and 29 years of age. The questionnaires' response rate was at 99,6 %, n = 259 of which could be evaluated. The subjective contentment from the SPs' point of view was attributable to the following factors:
1. Duration of waiting time until first care was conducted. More than 55% of SP declared that they felt cold, and in no more than 6% of the cases a blanket was offered to keep them warm.
2. Information flow concerning the next steps and actions to be taken was estimated as good or sufficient in almost 3% of the cases.
3. In up to 65% of the cases emergency staff asked uninjured SPs about their condition, and 28% were informed about pending procedures. Emergency pastoral care workers were recognized and engaged by about 60% of SPs.
4. SP estimated team collaboration among rescue workers very realistically. This was congruent with the results of the professional observers.
5. The general care for SP was rated from sufficient to good by 31%. The individual knowledge gain for SP regarding the MCI was at 35%. About 42% of them would remain calm in case of emergency. In a real case of emergency 64% would not worry about medical emergency care.

Discussion
For the most part the SPs' view of the MCI was congruent with the view by professional observers. This especially opened the topics of interface communication in medical emergency care up for closer analysis. As in the present case a structured SP questionnaire can contribute to a knowledge gain regarding MCI-simulations containing the specific topics.

Conclusion
The SPs' feedback provided a valuable supplement to strategic observations by professional observ-ers during the MCIs. Some process flows and potential obstacles can be further optimized by insights from this perspec-tive. This especially applies to the topics of communication and medical care. The survey tool requires further testing and validating in future MCI simulations.

Sources
Hochschule für Angewandte Wissenschaften Hamburg, Hamburg University of Applied Sciences Fakultät Life Sciences Rettungsingenieurwesen, Evaluationsbericht zur MANV-500-Übung auf dem Flughafen Berlin Brandenburg

Evaluation of virtual reality as mass casualty incident training modality

Boris Tolg[1], Frank Hörmann[1], Marc Schütte[1], Jonas Jost[1], Vanessa Martin[1], Stefanie Merse[2]
[1]University of Applied Sciences Hamburg, Germany; [2]University Duisburg-Essen, Faculty of Medicine, Essen, Germany
boris.tolg@haw-hamburg.de

Background
Mass casualty incidents (MCI) are fortunately rare situations. Nonetheless the threat of terrorist attacks, natural disasters or accidents are always present. Since the training of MCI handling is associated with a huge amount of human resources, material and money. The simulation of those events cannot be realized for all students on a regular basis. As an MCI is usually associated with a phase of chaos preparation of the rescue teams in form of training of the proper protocols is vital for successful management of the situation and therefore the survival of the people affected. Virtual reality could be a possible solution for this problem, since MCIs can be simulated in a virtual environment with low costs and only a limited number of staff necessary compared to a real life scenario. Thus different steps of MCI management training can be realized at any time and place where a personal computer is available.
This study was approved by the local ethics commission.

Research question
This work is a first study to compare results and behavior of medical and paramedical personnel in a simulated MCI using standardized patients(SP) in a prepared lab with the same lab rebuild in a virtual environment and patients realized by virtual entities. Since user interface interactions are different to real world interactions the aim of this study was to explore outcome differences in a standardized triage exercise delivered in a scenario with SP and the same scenario in virtual reality.
The most relevant factor in MCI management is patient triage. A virtual reality training method and tool therefore must be able to deliver a patient triage environment comparable in outcome to a real life scenario based training.

Methods
The study was set as a cross-over study with the groups g1 and g2. Group g1 realized the triage scenario with SP first and the virtual scenario second . For Group g2 the order of the simulations was reversed. The participants were students of the HAW with experience in emergency rescue management. The mSTaRT algorithm was used for classification of the patients.
Evaluation was based on questionnaires and loud thinking protocols. One questionnaire delivered data on mSTaRt skills (based on self-assessment) before and after each training session. The user-experience-questionnaire (UEQ) was used as an operational definition for modality moderated interaction. Thinking aloud protocols were intended to reveal insights into the cognitive process of task performance. In order to get thinking-aloud protocols, participants were equipped with a microphone and received an instruction to articulate their thoughts while performing the triage tasks.

Results
The study was realized with 18 participants that had been randomly assigned to the groups. The triage results of both groups have been compared using the t-test and the statistical tool R. For g2 a marginal increase of correct triage results could be shown ($p=0.086$). The effect strength was calculated using cohens d, showing a weak effect. For g1 the t-test shows no effect. A comparison of the self-evaluation of the users showed, that g1 had a higher experience level, so a cover effect is possible. The UEQ shows good results for both types of simulation regarding the parameters attractiveness, stimulation and novelty but occasionally uncorrelated results for the parameters perspicuity, efficiency and dependability which indicate that the participants were insecure about the intention of the questionnaire.

Discussion
The collected data shows that virtual reality training is an appropriate modality to train triage algorithms in an effective and repeatable manner. It is important to have an interface, which allows the medical personnel to interact fast and smoothly within their environment. For this a tutorial for the software should be implemented prior to the training session.

Conclusion
This study shows that a virtual reality environment can be an effective tool in the training of the first essential task of mass casualty incident management. The next step will be adding further protocols like request for additional emergency support as well as a full patient treatment module. Further research is needed to assess its usefulness for the entire MCI management process.

References
[1] "Virtual-world hospital simulation for real-world disaster response: Design and validation of a virtual reality simulator for mass casualty incident management.", Pucher Et al., J Trauma Acute Care Surg. 2014 Aug;77(2):315-21.
[2] "Virtual reality and live simulation: a comparison between two simulation tools for assessing mass casualty triage skills.", Ingrassia et al., Eur J Emerg Med. 2015 Apr;22(2):121-7.
[3] "MiRTE: Mixed Reality Triage and Evacuation game for Mass Casualty information systems design, testing and training.", Yu et al., Conf Proc IEEE Eng Med Biol Soc. 2011;2011:8199-202.

The participation of MSc nursing students in designing simulations

Patrik Pucer, Boštjan Žvanut
University of Primorska Faculty of Health Sciences, Slovenia
patrik.pucer@fvz.upr.si, bostjan.zvanut@fvz.upr.si

Background
The importance of simulation in nursing education is increasing. In the past, several effort was spent to design new nursing simulations. Unfortunately, many of these simulations do not help nurses to achieve competencies required in the clinical environment. Previous studies report about the needs for nursing simulations in real-life clinical settings. However, nurses do not have the required expertise and time to prepare simulation specifications for simulation trainings providers.

Research question
This article presents the idea of including nursing MSc students in designing simulations. The aforementioned idea was implemented in practice in the course Simulation in nursing (MSc in Nursing), at the University of Primorska, Faculty of health sciences. Students were required to prepare simulation's specifications according to their learning needs identified in their everyday work in nursing clinical practice. The principal outcome of this course is to prepare a practical simulation project under the technical and expert supervision of lecturers. Hence, we pose the following research question: Can nursing MSc students provide adequate specifications for simulations in nursing?

Methods
Qualitative content analysis was performed on 17 simulation projects implemented in academic years 2012/2013 – 2015/2016: 6 simulations were implemented on high fidelity human patient simulator, 8 were implemented as e-learning simulations, and 3 with simulated patients. These simulation projects were implemented in groups of 2-5 students. Different project outcomes (e.g. simulation proposals, written seminars, videos of simulations, e-learning contents) were analysed in order to answer to the research question. The projects' outcomes were coded independently by two researchers iteratively through three phases: open coding, axial coding, and selective coding. After each phase the results were compared and consolidated between the two researchers.

Results
The following core categories emerged as a result of qualitative analysis: positive aspects of including nursing MSc students (sub-categories: identification of required simulations in nursing clinical practice, innovative simulation proposals, inclusion of process elements in simulations), and negative aspects of including nursing MSc students (sub-categories: inconsistent technical specification of simulation, unfeasible proposals).

Discussion
Our results indicate that nursing MSc students with considerable work experience can provide a valid help in designing innovative nursing simulations. The negative aspects that emerged from the analysis can be bridged by assisting these students in the preparation and pilot phase. The participation of nursing MSc students is relevant for the development of new, innovative simulations in nursing.

Conclusion
Nursing MSc students with considerable experience in clinical practice and interest in the field of nursing simulations can be a valid member of the nursing simulation development team. Their participation can provide practical examples of teaching/learning requirements, which emerge from real-life.

How to implement simulation training in the nursing curriculum?

Stef Janssens, Leen Roes, Sarah Deschepper
KDG, Belgium
stef.janssens@kdg.be

Aims project
• To improve interprofessional communication
• To decrease faults
• To empower nurses
The project is divided in three parts;
1. CRM study: 2015-2016: poster attached. During this study lectures are trained in CRM simulation and debriefing. They will develop their CRM and debriefing skills.
2. Implementation CRM in the curriculum: 2016-2020.
• 2016-2017: +/- 210 students(first year)
• 2017-2018: +/- 400 students(first and second year students)
• 2018-2019: +/- 600 students(first, second and third year students)
• 2019-2020: +/- 800 students(all 4 years)
3. Introducing other healthcare students in the CRM training for nursing students. Other healthcare students will join the program from 2018-2019.

Simulation and Gaming for teaching medical approach of the neurological patient

Christina Silva Costa Klippel, Lúcia Helena Pezzi, Rosangela de Almeida Castro Amorim, Silvio Pessanha Neto, July Teixeira, Pedro Cruz, Jaqueline Ahlert, Brenda Emanuelle Miranda, Ana Paula Maciel Vieira, Leonardo Antunes Vilaça de Souza, Ohana Natureza, Thiago Zandonay
Estácio de Sá University, Brazil
julyt23@hotmail.com

Background
Simulation based learning consists of an appropriate methodology for the improvement of clinical and psychomotor skills of medical students in a controlled environment.
In order to provide reliability to the scenarios, the standardized patient methodology contributes to simulate real scenes of clinical cases.
This method allows students to identify and interpret signs and symptoms of a clinical condition similar to real life, according to a didactic planning.

Methodology
The purpose of the trial was to describe a game experience with the use of the standardized patient methodology in a medical learning activity. The activity took place during the Scientific Week at the Medical School of a University in Rio de Janeiro, Brazil.
The selected theme for the game was Neurological evaluation of injuries of the cranial, facial, vestibulocochlear and accessory nervs, since this analysis demands theoretical knowledge, practical skills and professional attitude towards the patient. The sample consisted of 28 students from the 1st year of medical course.
Participants attended an interactive lesson on the subject, with video presentation and simulation of patients with neurological injuries, performed by the instructors. Afterwards, participants were divided in two groups. The groups were asked to choose the right answer to ten questions on the subject, in a competition way. Then began the contest.
Two students from the Theatre Course played the standardized patients according to three contextualized cases. The actors were characterized by Moulage technique with appropriated costumes. After each case presentation, students answered questions related to neurological injuries presented in the case.
For each scenario, the instructors drew up a detailed form with the case description and the actor's script. At the end of the game the right answers were showed and a discussion among all participants occurred.

Results
During the game students shown interest and thrill due to the realistic behavior of the actors. The hit rate of both groups were 90%

Discussion
Although the activity had involved a very easy task with simple questions, it demonstrated to be useful for student interaction and teamwork.
The teacher's intention was to show the students that some medical themes could be discussed in a pleasant way.

Conclusion
The insertion of standardized patient methodology proved to be an effective resource to bring the student to the reality of clinical practice. The study suggests that educators employ this methodology in other educational activities.

Realistic simulation in the training of health professionals as volunteers for the 2016 Olympics

Christina Silva Costa Klippel, Lúcia Helena Pezzi, Silvio Pessanha Neto, Rosangela de Almeida Castro Amorim, Pedro Cruz, July Teixeira, Rafael Augusto Dantas Prinz, André Luiz Santos Saud, Marcus Vigna, Monique Vital, Eduardo Scarlatelli Pimenta, Cesar Figueiredo, Tadeu Sá, Edward Theodore Dresch, Artur Shioji Ferradosa, Luis Antonio Moliterno
Estácio de Sá University, Brazil
drpedrocruz@gmail.com

Background
For the first time in Olympics history there has been provided a special training for health professionals. It occurred in Rio de Janeiro, Brazil.
Simulation based learning is currently the most effective method for improving clinical skills, teamwork, crisis management and implementation of international clinical protocols.

Metodology
The aim of the study was to evaluate the theoretical knowledge of volunteers trained to work at the Olympic Games Rio 2016. The training programm included health care on cardiac emergencies. The methodology applies was realistic simulation.
Descriptive, retrospective and quantitative study. A total of 94 health professionals registered as volunteers for the Rio 2016 received an 8 hours training, ministered by teachers and instructors of Medical Emergencies subject at an University in Rio de Janeiro, Brazil.
Pre and post tests were used as data collection tools. The tests included 15 questions, demanding clinical judgment and not just memorization of protocols.
All participants took part in an interactive lecture on health care for cardiac arrest, automatic external defibrilator management, airway management and cardiac arrest rythms identification.
Then the practical demonstration with the mannequin began. Participants trained in pairs, being assisted and evaluated by the instructor who made corrections until the proper execution of the technique was performed. PCR rhythms were trained in the high-fidelity mannequin cardiac monitor.
Afterwards, participants received an interactive lecture on cardiac emergencies protocols. For practical activity, participants were divided in five groups. Each group took part in a simulation scenarios with subsequent debriefing session.
In addition to the study protocol, communication skills, leadership, teamwork and decision making process have been enhanced. Finally, participants answered the post-test and a presentation of correct answers was shown.

Results
The data analysis demonstrated that 89.3%% of the participants showed an increase in the hit rate at the post-test; 7.5% kept the same hit rate and only 3.2% presented a lower hit rate ($p < 0.05$).

Discussion
Realistic simulation is an established method for health professionals training. However, in order to get good outcomes, the participation of qualified teachers and instructors trained in the use on the methodology is required. It's also necessary an adequated environment with efficients resources.

Conclusion
Realistic simulation proved to be an effective method for health professionals training in the care of cardiac emergencies.

Realistic Simulation or Standardized Patient? The perception of medical students on learning methodologies

Christina Silva Costa Klippel, Marcus Vigna, Eduardo Scarlatelli Pimenta, Igor Lima, Lúcia Helena Pezzi, Monique Soriano, Jordana Barros, Wagner Patrício, Elmo Pereira Jr., Rosangela de Almeida Castro Amorim, Ohana Natureza, Thiago Zandonay, Hugo Mandarino, Marina Pessôa Galvão, Patrick Ferreira da Rocha
Estácio de Sá University, Brazil
marcusvigna@hotmail.com

Background
Currently, Simulation based learning is considered the most appropriate methodology to improve clinical skills, teamwork, crisis management and memorization of international clinical protocols.
In other to achieve an experiential learning, it is necessary that a complete interaction between students and environment can occur so that fiction can come closer to a very realistic scenario.

Metodology
The purpose of the trial was to evaluate the perception of medical students concerning two learning methodologies: Simulation versus Standardized Patient.
The sample consisted of 30 students from the 6th grade of the Medical School at an University in Rio de Janeiro. A questionnaire created through Google Forms application was submitted. This included seven closed questions on student's perception about the interaction difficulty when dealing with the high-fidelity simulator and with the standardized patient, the stress degree experienced with the two methodologies and the influence of these teaching methods on their performance in clinical practice.
For each question the answer was given according to a Likert scale, containing five items related to the difficulty degree: very high, high, moderate, low and very low. The "high" item was considered as standard for the answers comparison.

Results
Concerning the difficulty degree of interaction, data collected showed a similar profile for the two methods, both with 25% score.
Regarding the stress degree, it was observed a 2.8% lower rate with the high fidelity simulator method.
Regarding the contribution of these teaching methods to clinical practice, the methodology with the simulator presented a 5.6% higher score ($p < 0.05$).

Discussion
The increasing technology in healthcare education has encouraged the development of innovative methods in healthcare education.
The potential risks to patients associated with learning at the bedside are becoming increasingly unacceptable. The need of innovative education and training methods that protect the patient from preventable errors goes on.
In recent years, high-fidelity simulation has played a growing role in medical education. The standardized Patient affords the student an opportunity to learn and to be evaluated on learned skills in a simulated clinical environment.

Conclusion
Both methods have shown to be effective for the learning of medical students and demonstrated to offer great contribution to the performance of future doctors in clinical practice.

How to train simulated patients for giving feedback?

Carine Layat Burn[1], Henrike Hoelzer[2,1]
[1]Association for Standardized Patient Educators; [2]Medizinische Hochschule Brandenburg Theodor Fontane
nora-carine@hotmail.com, henrike.hoelzer@mhb-fontane.de

Background
Meaningful, specific feedback is effective for trainees's skills development in health care/medical education. Feedback from simulated/standardized patients (SPs) is highly appreciated by learners and faculty, because it represents a unique opportunity to integrate the patient's perspective in health professional's education. There are different feedback models which need to be adjusted to different teaching contexts — such as the feedback sandwich, feedback in dialogue, the feed-forward method etc. Each feedback model suits a different learning context. SP-training techniques need to be adapted accordingly, so that the SPs' experience as well as the educational goals are taken into account. The workshop focuses on various approaches used for training SPs to share verbal feedback with trainees. Several processes used to train SPs to deliver feedback will be presented and participants will have the opportunity to apply one of them.

Learning objectives
Participants will:
- Recognize and identify the key elements of an effective verbal SP feedback.
- Receive an outline of educational theory related to effective verbal SP feedback.
- Apply methods for SP training to verbal feedback.
- Identify benefits and challenges in training SPs in effective verbal feedback.

Workshop description
We will explore training approaches for SPS for delivering verbal feedback with trainees. Conceptual issues associated with the nature and content of feedback from patient perspectives in the field of health professional encounters will be considered. We take into account SPs training approaches to deliver verbal feedback including their benefits and challenges and how these approaches are relevant to the participants' own settings. Participants will have the opportunity to train SPs in a small group session. Participants will also discuss their own examples of training techniques (such as worksheets, exercises etc.) with peers.

Target audience
Novice to intermediate

Virtual reality and simulation

Michel Vergnion[1], Marjorie Maraite[1], Janse Vanvuuren Steeve[1], Thomsin Stephane[2]
[1]EPAMU, Belgium; [2]CHR de la Citadelle
michel.vergnion@provincedeliege.be

Background
Virtual reality (VR) has entered the realm of simulation. Once a privilege of big structures with substantial means, it has recently become affordable to schools and simulation labs due to the rapid development of cheaper technical solutions which are now easier to implement. We are referring to cameras capable of filming in 360°, headsets hosting smartphones used to display 360° videos and open source frameworks ensuring interaction between learners and the virtual world.
We use VR combined with hybrid simulation to target urgent medical care actors with field experience in the context of their continuous training. Experience has shown that this group is somewhat reluctant to the simulation process. Indeed, by using VR we intend to increase the interventions' realism and to focus the learners' attention.

Learning objectives
The main objectives of this workshop are to:

- Demonstrate how VR can enhance realism in a variety of situations and facilitate interaction with Simulated Patient (SP).
- Present the available equipment as well as the technical solutions that can be used to achieve cost effective projects
- Brainstorm new ideas on the implication of VR in simulation.

Description
The workshop will begin with a presentation of different technical solutions already available on the market: 360° cameras, different types of headsets, computers and smartphones, communication software and interaction with learners.
Then, participants will be invited to try different VR solutions in a variety of extra-hospital patient care hybrid simulations with SPs.
Lastly, a round-table will be organised around our ideas on VR development.

Target audience
Doctors, nurses, paramedics, ambulancers, simulation lab technicians

Hybrid Simulations for the assessment of Swiss medical students' clinical skills

Daniel Bauer[1], Raphael Bonvin[2], Jan Breckwoldt[3], Heinz Bruppacher[3], Matteo Monti[2], Kai Schnabel[1]
[1]Institut für Medizinische Lehre, Universität Bern, Switzerland; [2]Unité pédagogique de la FBM, Université de Lausanne, Switzerland;
[3]Dekanat der Medizinischen Fakultät, Universität Zürich, Switzerland
daniel.bauer@iml.unibe.ch

Hybrid simulation "[combines] simulated patients and part-task trainers […] to create a multimodal clinical context [that] requires clinicians to integrate technical and nontechnical skills in a holistic clinical performance for assessment" (Tun, 2012). If used correctly, such an approach reduces changes of medium and examinee-examiner interaction during the exam, thus maximizing fidelity on the patient dimension while still allowing for high levels of standardization. This ultimately adds to the validity of pass/fail decisions in high stakes assessment of clinical skills.

This is why the Swiss Federal Office of Public Health (Bundesamt für Gesundheit) set up a task force to pilot and evaluate hybrid simulations and to make recommendations for the use of hybrid simulation in the Swiss Federal Medical Licensing Exam's Clinical Skills Assessment. Moreover the Swiss Federal Office of Public Health financially supports the present project within the framework of a quality development funding line.

In this workshop we (1) present our findings from the first project phase that collated experiences and evidence from different sources, (2) provide participants with the chance to experience four mock OSCE stations using hybrid simulations for a (3) joint discussion of experiences and possibilities of the hybrid simulation approach.

Simulation Scenario development: Manikin, Hybrid or SP?

Monika Brodmann Maeder, Thomas Sauter
Bern University Hospital and University of Bern, Switzerland
monika.brodmann@insel.ch, thomas.sauter@insel.ch

Background
Medical education has undergone a substantial shift from ex-cathedra teaching towards interactive methods and learner-centered approaches. Simulation is one of the outstanding instrument to foster active learning, team work and communication. In the last years the variety of tools for simulation experiences has grown, and for long time the world of simulation was split into manikin-users and SP-users. Nowadays many simulation specialists use different simulation instruments for teaching.

Learning objectives
The aim of this workshop is to address the diversity of simulations as learning instruments and to illustrate the importance of learning objectives as a starting point for the development of a simulation scenario.

Participants in the workshop

- Should acknowledge the importance of well-defined learning objectives
- Should learn that learning goals influence the choice of the simulation "tool"
- Should become familiar with the different sim instruments (manikins, hybrid simulation and SPs)
- Should recognize advantages and limitations of the different instruments

Workshop description
After an introduction by the instructors with a presentation of the different types of simulation and a guideline for scenario development, participants will develop short scenarios based on chosen learning objectives. The scenarios will be presented in the plenary and will be the start of an exchange of experiences. The workshop ends with a short self-reflection on the lessons learnt.

Target audience
Healthcare professionals, educators and simulation specialists involved in the development of simulation scenarios.

Steering committee

S. Guttormsen, president, Institute for Medical Education, University of Bern
P. Marbet, College of Higher Education in Nursing Bern
S. Matt, Bern University of Applied Sciences Health (BFH)
E. Mischler, Bern University of Applied Sciences Health (BFH)
N. Oberhauser, Haute Ecole de Santé Vaud (HESAV), Lausanne
T. Scherer, Bern University of Applied Sciences Health (BFH)
C. Schlegel, College of Higher Education in Nursing Bern
K. Schnabel, Institute for Medical Education, University of Bern
U. Woermann, Institute for Medical Education, University of Bern

Scientific committee

K. Schnabel, president, Institute for Medical Education, University of Bern
D . Bauer, Institute for Medical Education, University of Bern
M. Brodmann, University Hospital Inselspital Bern
J. Des Granges Zimmermann, Haute Ecole de Santé Vaud (HESAV), Lausanne
S. Gisin, University Hospital Basel
C. Layat Burn, Association for Standardized Patients
B. David Rapphold, Bern University of Applied Sciences Health
U. Weber, College of Higher Education in Nursing Bern
D. Watzek, Bern University of Applied Sciences Health

Organizing committee:

U. Woermann, president, Institute for Medical Education, University of Bern
D . Bauer, Institute for Medical Education, University of Bern
S. Matt, Bern University of Applied Sciences Health
N. Oberhauser, Haute Ecole de Santé Vaud (HESAV), Lausanne
C. Schlegel, College of Higher Education in Nursing Bern
K. Schnabel, Institute for Medical Education, University of Bern

Editorial deadline

03.03.2017

Your notes

www.spsim.ch