



Welcome to HPSN Europe 2011!

We are very proud to be facilitating this conference for the 7th consecutive year and are extremely happy to have you here in Mainz, not only as guests but also as active presenters and chairs, as curious inquirers, as discussants, and as contributors to the papers and workshops that are offered.

We hope you will approach the next two days in the spirit of all HPSN meetings: A platform for you, with the focus on exchanging ideas about education, learning, and experience. Look around you; the participants you see are just as curious as you are, so do not hesitate to become an active participant. Do you have questions? Just ask; someone will have the answer. Do you bring experience? Talk about it; someone will profit from that. Do you have a project? Speak-up, someone is certainly willing to partner with you.

Also, enjoy the conference. There will be opportunities to meet old and new friends, we will introduce you to "Glühwein" and music and then let you explore the traditional Christmas Market right outside of our venue.

We are personally happy to see you, and especially to talk to you. Have fun, teach and learn!

Following the conference we will send you an e-mail link to the on-line evaluation tool and look forward to your comments, thoughts and suggestions.

The 2011 HPSN Europe Committee:

Stefan Mönk, Jochen Vollmer and Ronny Schuerer



Stay connected to us during the conference by visiting us daily on Facebook! Become a fan of our Facebook page and tell your friends about it. Share what is exciting and let us know what you think. Our Facebook page is: <http://www.facebook.com/METILearning>

HPSN Europe Abstracts 2011

Concurrent Session A

Laboratory Practices as Pedagogical Strategy and Critical Learning Environments

José Amendoeira, Portuguese Catholic University, Santarém, Portugal

Introduction: The emergence of inductive paradigms in higher education, the ability to think critically has been extensively studied (Simpson and Courtney, 2008; Standing, 2008), demonstrating its relevance in the field of individual student factors, which may influence the clinical trial and clinical decision making. In this framework, we tried to understand how students learn to use critical thinking skills in Clinical Trial for learning of decision making, in the contexts of care.

Method: Systematic Review of Literature (RSL) was used as the most appropriate strategy, formulating the question: Using Critical Thinking in Clinical Trial by nursing students in learning contexts of care facilitates decision-making clinical? We used the platform EBSCO (CINAHL Plus, Medline, Cochrane, Nursing and Allied Health Collection), using a protocol, with filter 2000/2010, submitting the following keywords in the sequence presented: Nursing Education, Critical Thinking, Clinical Judgement, and Decision Student Making.

Results: Is relevant the importance of the combination of cognitive development and critical thinking, while contributions from the clinical examination and optimization of the processes of decision making in nursing. (Comer, 2005; Del Bueno, 2005; O'dells & Lisk, 2005; Standing, 2008; Horan, 2009; Guhde, 2010). Most notable are the use of simulation (Comer, 2005), in laboratory settings, mini-scenes recreated using a simulator (Horan, 2009), as strategies that facilitate those processes.

Virtual Reality Simulation in Laparoscopic and Arthroscopic Surgery - Impact On Safety, Quality and the Quest for Young Talents

Jörg Beardi, Schön Klinik Neustadt

Quality management and safety management systems become more and more important in hospitals and especially in the operating room. The successful improvement of flight safety and the lessons learned serves as a model for improvement of medical quality and patient safety. Two key points in flight training is the simulation training and implementation of check lists. Despite the developments in Quality and safety, the situation concerning the young academics is worsening because of a lack of students and the unattractive work-

ing situation in surgery for the generation Y. The aim of this presentation is to summarize the evidence based training effects of Virtual Reality Simulation Training, to summarize existing programs including own developments and to present the difficulties to generate a Simulation course. A short sight on future prospects concerning the quest for young academics and the contentment of the staff through implementation of simulation programs into surgical curricula is given.

Material and methods: The literature concerning VR-Simulation in surgery has been reviewed. A pubmed search concerning VR Simulation and laparoscopic and arthroscopic surgery and simulation programs has been performed. Results and developed programs are compared. The international results of the implementation of the WHO pre-and-postoperative checklist are compared presented. Own results on implementation of stress measurement and a intra-operative check list are presented. For the development of a training curriculum the results and experiences of the author are compared to the programs of the literature.

Laboratory Practices as Pedagogical Strategy

José Amendoeira, Santarém Higher Health School, Santarém, Portugal

In the context of nursing, laboratory practices designed as pedagogical means reconciling theoretical knowledge with practical know-how. In Santarém Higher Health School - Portugal - develop them specifically in the context of Curricular Unit Nursing I and Stage I of the course of nursing - 1st cycle, in the school context.

Does METI LearningSpace Offer Enough Space for Learning?

Paul van Katwijk, Coördinator of Professional Behavior and Clinical Internships, University of Twente, The Netherlands

In this meeting Paul van Katwijk will elaborate on the didactical concept of skills training at Technical Medicine in the Netherlands. Training of skills as physical examination, communication, medical interview, writing medical files, reflection, but also skills as suture, inject, puncture, use of scope is based on a didactical concept in which the student is highly responsible for his own learning (deliberate practice). The assessment of skills is therefore more focused on awareness than on the actual performance of skills. The insight of the student on what he is doing,

whether he is capable of explaining his actions is thought to be of more importance than to act according to protocols.

How do we use MLS in relation to this didactical concept? MLS is a practical tool for planning and registration. The question for this session is whether it also can be used as a real portfolio? A portfolio in which achievements are registered but is capable of directing the actual learning of the student too?

How flexible can MLS become? Are the students the users or the professors? Will it be possible to create a wide spectrum of assignments offered to the student based on the results of their assessments?

Assessment – Real Time Performance Metrics

Tim Antonius, University of Nijmegen, The Netherlands

Technical skills (TS) are an essential part of daily medical practice. In complex emersive simulation sessions, technical skills are as important as the behavioral skills. TS evaluation during complex simulation sessions can be very difficult for the instructors. Some skills require presence at the scene for proper evaluation because a lot of video systems are not capable to provide to instructor with enough detail or are difficult to control. Real time performance metrics (RPM) can provide the instructor with accurate data on the technical intervention. Data can be presented in such a way that the instructor can concentrate on other important tasks like behavioral skill rating, which technology in the current state fails to evaluate properly due to complex interpretation and communication patterns. In this session we will explore the possibilities of RPM and demonstrate how it can be implemented using our new neonatal simulator.

Virtual Reality Simulation in Invasive Cardiology

Wolfram Voelker, University of Würzburg, Germany

Currently five virtual reality simulators for diagnostic procedures and percutaneous coronary interventions are available. Simulation-based education provides a realistic hands-on training comparable to flight simulation in aviation.

However, for effective simulator training in cardiology a dedicated teacher is mandatory providing feedback and guidance. This trainer should be an experienced interventional cardiologist who knows both the simulator and the selected training cases which serve as a vehicle for transferring knowledge and skills.

Concurrent Session B

Wireless Simulators

Alin Schaumberg - University of Gießen, Germany

Data and Statistical Output from Simulation Sessions

James Wilson, Lancashire Simulation Centre (LTHTR), UK

We aim to demonstrate the range of statistics and data that is generated using StudioCode when 'tagging' events that occur during simulation. The poster/session will show the range of this data and how it can be used to debrief and its potential uses for assessment, with particular emphasis on timing and order of interventions

Using The HPS to Make Complex Physiology Applicable in Clinical Practice

Lex van Loon, University of Twente, The Netherlands

In this presentation we will briefly explain how the HSP is used as part of the physiology education at the University of Twente in order to make complex physiology more applicable in clinical practice. Physiological control systems will be treated which are that underlie the HPS. Finally the use of the HSP as part of our Experimental Center of Technical Medicine is showed.

Point of Care Ultrasound: Technology Spreading Faster than Expertise?

Robert Amyot, University of Montreal, CAE Healthcare

Content of the workshop: Ultrasonography in acute settings with targeted imaging is becoming a standard of care in medical centers as well as in the battlefield, in medical transportation, and to triage victims of mass casualties. Portable ultrasound systems are now low-cost, hand-carried devices generating reliable images. Moreover, these systems have been shown better than relying on landmarks to guide invasive procedures and therefore decrease complications. Unfortunately, most military and university medical centers do not have a structured environment to train healthcare providers to develop scanning and pathology recognition skills. We must avoid a case of technology spreading faster than the expertise to use it. Participants will explore the capabilities of virtual reality to simulate a variety of acute pathologies that do not offer a realistic opportunity for practicing skills outside of a simula-

tion-based environment because of their emergent character. We will deploy ultrasonography simulators so that participants benefit from a hands-on experience. Educational and didactic considerations will be discussed with the participants as well.

Concurrent Session C

Sustaining Simulation-Based Programmes in Obstetrics

Diogo Ayres de Campos, University of Porto, Portugal

There is little scientific evidence to support the majority of simulation-based maternity training programmes, but some characteristics appear to be associated with sustainability. Among these are a clear institutional-level commitment to the course, strong leadership in course organisation, a curriculum relevant to clinical practice, a nonthreatening learning environment, the establishment of multiprofessional training, and the use of simulators appropriate to the learning objectives. There is still some debate on whether simulation-based sessions should be carried out in dedicated training time outside normal working hours or in ad-hoc drills that are run during clinical sessions, whether they should be located in clinical areas, simulation centres, or both, and whether or not they should include standardised generic teamwork training sessions.

Assessing the Effectiveness of a Simulation Course for Midwife Students

Eszter Borjan, Semmelweis University Budapest, Hungary

Each of the students at our Faculty has a compulsory course: clinical simulation. After this course we offer optional courses for nurse and midwife students using the most appropriate PNCI scenarios to prepare them for the real clinical practice.

The METI Simulation Effectiveness Tool (SET) was used to assess the difference between the students' opinion before and after the simulation course. The purpose of this presentation is to illustrate our teaching strategies and our results using the SET.

Innovative Add-on for Neuromuscular Monitoring Using METIman

Nuno Freitas, MEDSIMLAB, Portugal

Presentation of an hardware and software add-on using METIman simulator for neuromuscular response and monitoring. Review of neuromuscular monitoring standards and patient safety related issues.

Matrix System Marking in Simulation Based Medical Education — The Basics

James Wilson, Lancashire Simulation Centre (LTHTR), UK

This workshop demonstrates the use of video capture and analysis in Simulation Based Medical Education, how it can be used to inform debrief and the basic of marking a simulated scenario.

Augmented Reality: The Haptica Simulator

Fiona Slevin, CAE Healthcare

The ProMIS Surgical Simulator uses a unique blend of physical and virtual reality to provide a highly realistic, surgically relevant learning experience. It provides a range of training modules in general laparoscopic surgery and its technology has been extended to minimally invasive spine surgery. In a number of studies, ProMIS™ out-performed pure Virtual Reality (VR) in terms of validity and user preference.

In this workshop-style presentation, participants will develop an understanding of ProMIS, the technology, current content (skills and procedural modules) and metrics. There will be special focus on how ProMIS provides an ideal tool for research and for developing and integrating surgical skills curriculum.

Concurrent Session D

Simulation in Nurse Education: Nurse Educator Perceptions and Experiences

Stella Whitley, Glyndwr University, UK

This session discusses recent research with regards to how nurse educators perceive simulation. There is much evidence to support simulation as a teaching modality and how students perceive simulation, however with the increasing popularity of simulation across the world it was of interest to explore the perceptions of nurse educators prior to incorporating simulation into the nursing curricula.

Alternative to a Full Immersion Simulation Suite

Phani Kiran Yajamanyam, North Middlesex Hospital

Simulation is increasingly becoming an essential part of junior doctor training in the UK. It is now expected that all hospitals can deliver simulation training to foundation year doctors. We describe how effective high fidelity simulation can be implemented in a district general hospital without a dedicated simulation suite.

Concurrent Session E

Design of Medical Simulators

Willem van Meurs, CAE Healthcare

- Provide insight in the structure and design of full-body model-driven acute care simulators.
- Improve the dialog between simulator users and designers.
- Preliminary design of a new simulator (component).

After a brief introduction of the functional units of full-body model-driven simulators, and of embedded design procedures for simulations, simulators, and models, we will identify a medical training challenge that could be met by a new or an improved simulator. A simple training needs analysis will be completed, a simulation based training program will be outlined, and simulator requirements will be set.

CAE Healthcare integrated Simulation Center

Pedro Ramos, Madeira Clinical Simulation Center, Funchal, Portugal

The Practice of Simulation: A Contribution to Nursing Education

Filipa Veludo, The Catholic University of Portugal, Lisbon

The practice of simulation as a method of training is increasingly being used to train health professionals in various disciplines. In our context of training, this practice is integrated in the curriculum, using different scenarios, materials and resources, promoting the integration of knowledge, skill development, monitoring of student learning.

We emphasize the following objectives:

Characterize the use of simulation in the laboratory practice in curriculum

Characterize the use of simulation as a methodology for evaluating

Present aspects valued by students regarding the use of simulation in the learning environment.

Simulator Fidelity and Model Validity

Willem van Meurs, CAE Healthcare

- Present a framework for integrated design and evaluation of acute care simulations, simulators, and models.
- Improve the dialog between simulation users and designers.

In the context of full-mission simulation of high performance tasks we propose a framework for the integrated design and evaluation of acute care simulations, simulators, and models. In the design phase, we strive for functional fidelity, physical fidelity, and conceptual validity, respectively. Simulation, simulator, and model designs can be evaluated via educational impact and clinical outcome studies, expert opinion, and conceptual validity, respectively. Challenges for design and evaluation include the relative nature of fidelity, the subjective nature of validity, and the scarcity of human target data for educationally relevant situations.

Multidisciplinary Team (MDT) Training for Obstetric Emergency with Trauma

James Wilson, Lancashire Simulation Centre (LTHTR), UK

A presentation of a recent trauma scenario using a maternity simulator. Eight different specialties were involved in managing the patient and associated injuries.

European Trauma Course 2009. Course Manual. Advanced Trauma Life Support Course manual. Robertson et al. Simulation-based crisis team training for multidisciplinary obstetric providers. Simulation Healthcare 2009.

J-MANS - Our Experience in Creating a New Joint Training Course

Ai-shi Lim, Sussex and Surrey NHS Trust, UK

J-MANS stands for Joint Medical And Nursing Simulation. While the majority of simulation still involves only one discipline, more and more courses are beginning to harness the multidisciplinary aspect to simulation training. We share our story of how we created a highly successful multidisciplinary training course from its inception to final product. It includes some advice on what we found helpful and things we wish we had avoided in trying to set up a multidisciplinary course such as J-MANS.

EndoscopyVR™ - The Simulator for Bronchoscopy and the Endoscopy of Upper and Lower GI Tract

Friedrich Gauper, CAE Healthcare

Like many other medical procedures endoscopy requires knowledge (anatomy, pathologies, use of the equipment), manual skills (inspecting the entire surface, performing the required interventions, without causing pain or severe damage, like perforation) and the appropriate attitude. While endoscopy used to be trained in the traditional 'apprenticeship model', the trainee watching what the trainer was doing and taking over step-by-step, the training object was still the patient, until virtual reality simulators have become available, that train the theoretical background (video tutorials, animated graphics, etc.) and allow to simulate various procedures, from a simple bronchoscopy to an ultrasound guided trans-bronchial needle aspiration or from a straight forward EGD to a sophisticated ERCP, or performing polypectomies in the colon. Mistakes may occur, but these have in contrast to real life no consequence other than learning to do it better next time. There are various degrees of difficulties in the different cases and a very detailed post-simulation evaluation shows the performance relative to numerous parameters and allows to monitor the progress of the trainee. The CAE Healthcare Endo(scopy)VR will be shown in detail and anybody who has interest is invited to perform an endoscopic procedure.

Neonatal Circulation Modeling

Tim Antonius, Univ Nijmegen

The fetal and neonatal circulation differs from the adult circulation in some very important aspects. The patent ductus arteriosus and foramen ovale in combination with the high pulmonary pressures makes right-to-left and left-to-right shunting of the blood an every day reality, which can be difficult to manage and understand. Current circulatory models of adults don't incorporate these physiologic shunts and therefore these models can not be used for teaching fetal and neonatal circulatory (patho) physiology. Another important pathological feature of the neonatal circulation is the presence of congenital cardiac defects. These defects can also be very challenging to understand, even for seasoned neonatal intensivists.

We improved and expanded a published model of the neonatal circulation and incorporated some common congenital heart defects. We also added an oxygen transport and bloodgas model. Learners can 'tweak' variables like shunt sizes, dimensions and other circulatory parameters in real time

and see what the effects are on the pressures, oxygenation and bloodgas.

In this session we will explore the neonatal circulatory model and discuss the way this learning tool can be incorporated in clinical practice.

Keynote

Simulated and Standardized Patients: Why Would You Want to Use Them?

Jan-Joost Rethans, Associate Professor, Skillslab, Faculty of Health Medicine and Life Sciences, Maastricht University

More than 45 years ago Barrows and Abrahamson introduced the use of simulated patients. A simulated patient (SP) is defined as a 'normal person who has been carefully coached to accurately portray the characteristics of a specific patient'.

Originally SPs were exclusively used in medicine but nowadays they are used in many other areas as for example in nursing, physiotherapy, dentistry, pharmacy, dietetics and veterinary medicine.

Despite SPs long history and its widespread use there are still many issues to be clarified or resolved in the use of SPs. Ignorance about the use of SPs leads to myths and fantasies about SPs, whereas in modern teaching one should focus on facts. Amongst the issues to be clarified or resolved in the use of SPs are: what is the difference between simulated and standardized patients?; are SPs only useful in the teaching of communication?; is feedback by SPs really useful?; how does the use of SPs compare to the use of real patients?; can all medical diseases be simulated?; How long does it really take to train an SP? and 'SPs can only be used in small schools, isn't it?'

In this presentation I will try to get rid of the myths, while beholding some fantasies (one must always have a dream!), but foremost I will focus on the facts and experiences about the use of SPs!

The Use of Simulators in Military Aviation

Bengt Littke, Senior Advisor, Gripen Marketing, Saab Aeronautics, Sweden

Simulators have been used for training within the field of aviation for more than 60 years and are today a natural and integral part of flight operations.

The first simulators were designed to train instrument flying in general and instrument landing procedures in particular.

Today simulators are used to support training in almost every aspect of aviation, ranging from basic flying training, over aircraft type conversion to tactical training and mission rehearsal. You even find simulation functions embedded in the on-board computers, enabling the aircraft to give simulated responses to various pilot actions, like missile firing.

A key feature in any simulator is the cueing, meaning the responses given by the simulator to the human senses in order to create a perceived realistic behaviour. In aviation the most important cues are visual, aural and motion cues. For some precision tasks, like formation flying, tactile cueing is also of importance. Absolutely accurate cueing is normally difficult to achieve, and it is often a very difficult assessment to determine whether slightly unrealistic cues still adds value, or if they only increase the risk for negative training, i.e. when the student adopts a behaviour that is not the desired or intended.

Another critical feature is the representation of abnormal situations or malfunctions. Although manufacturers often use the number of malfunctions represented in the simulator as a selling argument, it is often a good strategy to focus on a few malfunctions that are either very common or leads to catastrophic results if not handled correctly. The risk is otherwise that the simulation of malfunctions becomes a cost driver, which is then seldom used in a training environment with strict curriculums and limited time.

It is very important to distinguish the role of the user/customer and the simulator manufacturer. Only too often you see the user designing the simulators, normally leading to poor and expensive products. Much preferred is a process where the user concentrates on the training needs, which are then, jointly by user and manufacturer, translated into exact requirements in terms of simulator response and cueing. These requirements are then in a second step translated into a simulator design.

This leads into the field of Training Needs Analysis, or TNA. The TNA consists of two parts. One is the definition of Training

Tasks, which is a very detailed description the training needs. The other is a detailed description of simulator behaviour in the form of a performance profile. Preferably every relevant aspect of the simulator behaviour is described in a number of quantitative steps where a desired level of performance can be identified for every task. Based on this mapping you can decide whether you should have several simulators with different characteristics, or if it is more cost efficient to build one simulator that can cover all the tasks. This analysis is normally referred to as the training media selection.

In my presentation I will show a typical break down of military aviation training needs into training tasks, as well as the typical content of a simulator profile. I will also give examples of general classes of simulators or training media, and what types of training they are intended to support.

Using Simulators to Perform High Stakes. Assessments: Lessons Learned From the UK FRCA Examinations

**Andrew McIndoe, Consultant Anaesthetist ,
University Hospitals Bristol NHS Foundation Trust,
United Kingdom**

In 2004 the Examinations Committee of the Royal College of Anaesthetists decided to pilot the use of a commercially available full-body interactive patient simulator as an Objective Structured Clinical Examination (OSCE) assessment station within the Primary Fellowship of the Royal College of Anaesthetists (FRCA) examination. This session discusses the results of that pilot and the subsequent formal inclusion of simulator-based assessment into the FRCA and wider medical curriculum.