FIRST INTERNATIONAL PEDIATRIC SIMULATION SYMPOSIUM AND WORKSHOPS

14-15 February 2008, Stockholm, Sweden

CENTER FOR EDUCATION IN PEDIATRIC SIMULATOR

Stockholm South General Hospital

KAROLINSKA

University Hospital

Pediatric Simulation and Training Center

Warmly welcome to Stockholm

We are very happy to organise the first international pediatric simulation meeting. Our aim is to gather all professionals interested in pediatric simulation to exchange experiences, have lectures, workshops, networking and discussions in hot topics in simulation.

Our target groups are persons working with simulation and obstetrics, neonatology, pediatric medicine, pediatric surgery, pediatric anaesthesia and intensive care and ECMO.

We have a mixed program that we hope will suit both "beginners and veterans" in simulation and also create good stimulating scientific discussions.

We look forward to see you taking part of the meeting and hope you will enjoy the meeting and the beautiful capital of Sweden.

Eva Wesslén-Eriksson
Head of Local Organising Committee

Local organising committee

Lisa Skogström, Gunilla Henricsson, Margaretha Lannge, Martino Corrias and Eva Wesslén-Eriksson at the Pediatric Simulation and Training Center, Karolinska University Hospital

Sophie Berglund, Anders Dahlström and Anne Kirkegaard at the Center for Education in Pediatric Simulator, Stockholm South General Hospital

We thank our sponsors and exhibitors for their contribution

Main sponsors:

Laerdal
helping save lives

Landstingens Ömsesidiga Försäkringsbolag
The County Councils' Mutual Insurance Company

Exhibotors and sponsors:

Abbott
B-Line Medical
Gaumard Scientific Co.
METI, Inc.

Programme at a glance

	Thursday 14 February	Friday 15 February
08.30	Registration	CRM
08.45		
09.00	Opening	
09.15	Obstetrics and Neonatology	
09.30		Trauma
09.45		
10.00		
10.15	Coffee break	Coffee break
10.30		
10.45		Workshops, CRM
11.00	Obstetrics and Neonatology	
11.15		
11.30		
11.45		
12.00	Lunch	Lunch
12.15		
12.30		
12.45		Evaluation of Simulation
13.00	Workshops	
13.15		
13.30		
13.45		
14.00	Simulators on the market	
14.15		Poster presentations
14.30		
14.45	Coffee break	Coffee break
15.00		
15.15	Debriefing	
15.30		Business meeting
15.45		
16.00		Closing of the meeting
16.15		
16.30		
16.45		
17.00		

Scientific programme

Thursday 14 February

8.30	**Registration**
9.00	**Opening**
9.15-12.00	**Simulation within Obstetrics and Neonatology** *Chairman: Anders Dahlström, Sweden*
9. 15	Severe asphyxia caused by obstetrical malpractice in Sweden 1990-2005 *Sophie Berglund, Sweden*
9.35	Challenges and Opportunities in Pediatric and Obstetric Simulation *Lou Halamek, USA*
10.20	**Coffee break**
10.55	Training in obstetric emergencies decreases the amount of infants with Apgar < 6 at 5 minutes *Thabani Sibanda, United Kingdom*
11.40	Discussion and questions
12.00	**Lunch break**
13.00	**Parallel Workshops** *Sign up sheets in the registration area*
14.00	**Simulators on the market** *Peter Weinstock, USA* *Chairman: Eva Wesslén-Eriksson, Sweden*
14.45	**Coffee break**
15.15- 17.00	**Debriefing** *Anne Lippert, Denmark, Lou Halamek, USA and Peter Weinstock, USA* *Chairman: Eva Wesslén-Eriksson, Sweden*
19.30	Dinner at van der Nootska Palatset

Friday 15 February

8.30-11.45	**Team simulation** *Chairman: Margaretha Lannge, Sweden*
8.30	Crew Resource Management *Peter Dieckmann, Germany*
9.30	Trauma: Building a CRM Course *Peter Weinstock, USA*
10.15	**Coffee break**
10.45	**Parallel Workshops in Crew Resource Management**
11.45	**Lunch break**
12.45-14.15	**Evaluation of Simulation** *Chairman: Martino Corrias, Sweden*
12.45	What can medicine learn from flight simulation? *Mikael Sjöö, Sweden*
13.35	Validation of skills training in virtual reality *Gunnar Ahlberg, Sweden*
13.55	Discussion
14.15	**Poster presentation and discussion** *Chairman: Martino Corrias*
14.45	**Coffee break**
15.30- 16.30	**Business meeting** **Closing** *Chairman:Eva Wesslén-Eriksson*

Abstracts, workshops

Effect of a high fidelity simulation curriculum on pediatric resident competency in neonatal airway management skills

Arnold, Jennifer[1]; Fiedor Hamilton, Melinda[2]; Kloesz, Jennifer[3]; Clark, Robert[2]; Kanter, Steven[4]; Lowmaster, Becky[3]; Wisneiski, Steve[5]; Hofkosh, Dena[6]; Kochanek, Pat[2]
[1]Stony Brook University Medical Center, Pediatrics, Stony Brook, United States; [2]University of Pittsburgh Medical Center, Critical Care Medicine, Pittsburgh, United States; [3]University of Pittsburgh Medical Center, Neonatology, Pittsburgh, United States; [4]University of Pittsburgh Medical Center, School of Medicine, Pittsburgh, United States; [5]University of Pittsburgh Medical Center, School of Public Health, Pittsburgh, United States; [6]University of Pittsburgh Medical Center, Pediatrics, Pittsburgh, United States

Background: Pediatricians are responsible for delivery room resuscitation. Neonatal airway management skills as required competencies for pediatric trainees. Work hour restrictions have limited residents' opportunity to practice these skills. Pediatric residents have poor neonatal airway management skills. Falck (2003) and Leone (2005) report poor neonatal intubation success rates: 33-50%, 40-55%, and 40-62% for 1st, 2nd, and 3rd year residents respectively. Pediatric residents are not mastering this core clinical competency.

Objective: Improve pediatric residents' ability to manage the airway of a critically ill neonate including 1) proper set up of resuscitation equipment, 2) bag-mask ventilation, and 3) endotracheal intubation using the infant simulator, Simbaby (Laerdal).

Methods: 50 pediatric residents were randomized to participate in the simulation curriculum (24 study and 26 controls [standard educational approach]). The educational intervention included a web-based module reviewing management of the newborn in respiratory distress and a simulation curriculum consisting of delivery room scenarios where residents practiced delivery room set up, bag-mask ventilation, and endotracheal intubation. The primary outcome was intubation success rates in the clinical arena as documented by respiratory therapists (blinded). Secondary outcomes included learner satisfaction, performance evaluation in the simlab, and neonatal intubation complication rates.

Results: 163 intubations were performed by pediatric residents in the NICU during the study (82 intubations from the study group and 81 from controls). The Intubation success rate was higher in the study (65%) vs control (48%) groups for all residents ($p<0.05$, Chi-Square, Table). In the study group, trends toward higher success rates were seen across the spectrum of training level.

Conclusions: A simulation curriculum improved pediatric resident competency in neonatal intubation skills. This finding is strengthened by the observed intubation success rates in controls, which were similar to those previously reported across training levels. To our knowledge, this is the first study to evaluate directly the effect of high fidelity simulation education on competency in the patient care environment.
Support NIH#T32HD40686.

	Study Group	Control Group	
PGY I	58% (15/26)	47% (9/19)	
PGY II	66% (33/50)	45% (20/44)	
PGY III	83% (5/6)	56% (10/18)	
All Residents	65% (53/82)	48% (39/81)	P<0.05

Workshop in simulation based performance assessment and test construction basics

Edler, Alice
Stanford University, Pediatric Anesthesia, Stanford Ca, United States

This workshop will review the basic elements of test construction for patient simulation based performance assessment. We will highlight important areas of classic and modern test theory, discuss the pros and cons of several assessment tool designs, discuss a theory based approach to reliability measures, and provide examples used by the authors in pediatric anesthesia performance assessment of how patient simulation can strengthen reliable performance assessment tools. The audience will work on individual assessment projects of their choosing in small groups.

Topics to be included:
1. What is performance assessment and how does authentic performance assessment differ from traditional testing? We will detail three areas of testing common to both methods, the question/task, the response format and the scoring system, and discuss their application to performance assessment and variation from traditional written testing.

2. The basics of procedural based scoring. Here we will discuss the essential elements of a scoring system and provide tips and advise on making scoring systems user/rater friendly.

3. Unique assessment scoring opportunities offered through the use of patient simulation methods. How to use patient simulation to your benefit in constructing performance assessment tools.

4. Can I trust my instrument? Review of Classic Test Theory reliability measures (statistical variations on interclass correlations) and Modern Test Theory reliability measures (Generalizability Theory , G and D studies)

5. Making a good assessment tool better. Discussion of rater training, piloting, the use of Item Response Theory (IRT) for scaling and "when do I need to talk to an educational psychometrican?"

Basic neonatal resuscitation — training, evaluation and retention of skills

Soerensen, Jette Led[1]; Reinholdt, Jes[2]; Joergensen, Lise[3]; Baek-Jensen, AnneMette[2]; Nilsson, Louise[3]; Greisen, Gorm[2]
[1]JMC, Rigshospitalet University Hospital, Obstetric Department and Juliane Marie Centre, Copenhagen, Denmark; [2]JMC, Rigshospitalet University Hospital, Neonatal Department, Copenhagen, Denmark; [3]JMC, Rigshospitalet University Hospital, Anaesthesia Department, Copenhagen, Denmark

Aim is to report data about learning and retention in basic neonatal resuscitation before, immediately after and following 9-15 months after simulated training.

Setting and material: During 2003-2006 at the Obstetric Department, Rigshospitalet University Hospital, Copenhagen, 220 staff members (midwives, auxiliary nurses and doctors in labour ward plus nurses in ante- and postnatal wards) were eligible for obstetric skills training, where training in basic neonatal resuscitation was one among four obstetrics skills to be trained. 95 % of the staff eligible for training participated.

Research methods were action research and descriptive research. Evaluation was in accordance with the model of Donald Kirkpatrick and was carried out before, just after and 9-15 months following the training.

Results and conclusions: Data confirmed that staff valued both skills training in a simulated set up and the multi-professional approach. Management of neonatal resuscitation were considered stressful and unpleasant by the staff before training and the levels of discomfort were significantly less pronounced following training. Self-assessed scores of confidence for the trained skills improved significantly for all health professional groups when measured 9-15 months following training. A significant association between self-assessment of confidence in basic neonatal resuscitation and numbers of correct answers in a written knowledge of skills test (KOS-test) was revealed, which might indicate that staff were capable of self-assessing their own competencies in this skill. There was no association between many years of work experience and high numbers of correct answers in the KOS test, which might indicate that this skill was not learned or retained over time, and indicate that basic neonatal resuscitation need to be currently trained. Data might indicate that training in neonatal resuscitation needs to be trained more often than the other obstetric skills trained in the programme. The need for organisational changes in the department became visible and a new algorithm and new equipment for neonatal resuscitation were implemented.

Low-tech obstetrical and neonatal simulation

Sophie Berglund, Anders Dahlstrom, Anne Kierkegaard, Stockholm South General Hospital

Instructors from CEPS (Center for Education in Pediatric Simulator, Södersjukhuset, Stockholm) will demonstrate an ordinary scenario from the team training courses.

The workshop will start with a brief background, how a scenario is prepared, regarding pedagogic model with team and team leader functions, main goals as well as technical preparations like getting the mannequin and other equipment organized. A short debriefing will be demonstrated after the scenario.

There will be time for participants in the workshop to discuss this "low-tech" simulation, and the pros and cons to "high-tech" simulation and other issues that will be of interest to the participants.

Abstracts, posters

Forecasting research in simualtion education: "What is the future of high fidelity patient simulation in medical education?"

Edler, Alice[1]; Fanning, Ruth[2]
[1]Stanford University, Pediatric Anesthesia, Stanford Ca, United States; [2]Stanford University, Stanford Ca, United States

Medical simulation is an explosive educational field. Like any emerging field there is a need for direction and leadership. This abstract will report the analysis of a traditional Delphi investigation in the potential future uses of high fidelity simulation in medical education. The teaching and assessment categories which ranked as most important were: developing valid and reliable psychometrics for simulation assessment, using simulation for teaching cognitive and non cognitive core competencies, developing mixed modality simulation methods, and team training. The topics considered most feasible were: using simulation for procedure training, team training and ACLS, developing common psychometrics for simulation assessment. A "wildcard option" revealed in our investigation was the possibility of the birth of a business model for simulation education and assessment similar to the development of for profit testing centers for large scale credentialing testing such as nursing licensure examinations. This possibility may unite the importance and feasibility of development of valid and reliable psychometrics by private for profit financing of development of assessment tools and their testing along with for profit venues for testing with secure, sophisticated and reliable methods. We will discuss the forecasting of important and feasible uses of simulation. Our discussion is in the context of forecasting analysis and will identify "wildcard outliers" and the current 2008 position on simulation on the forecasting S curve.

Critical events simulation for neonatal and paediatric extracorporeal membane oxygenation

Wylie, Gillian[1]; Liddell, Morag[1]; Nimmo, Graham[2]; Davis, Carl[1]
[1]Royal Hospital for Sick Children, ECLS, Glasgow, United Kingdom; [2]Scottish Clinical Simmulation Centre, Stirling, United Kingdom

We describe the development of a programme for training in critical incident management during extracorporeal life support (ECLS) using clinical event scenarios based on a high fidelity patient simulator. ECLS provides life support in patients with potentially reversible respiratory failure when conventional management is failing. ECLS can also support the failing heart, particularly around the time of cardiac surgery.

The Scottish ECLS programme is based at the royal hospital for sick children in Glasgow. The programme began in April 1992 and supports 20-25 infants and children each year, with over 350 patients treated to date. It is essential that this intense and complex form of life support is free of potentially avoidable adverse incidents. The clinical skills of the multidisciplinary team who manage these patients must be developed and maintained. This presents a continuing challenge.

The aim of the clinical simulation training programme is to ensure that all medical, nursing and professions allied to medicine staff involved in ECLS have an opportunity to train in the most clinically realistic setting. The ECLS programme has a complement of 55 ECLS nurse specialists and 12 medical and surgical consultants. There is also a constantly changing junior medical staff who come into contact with these patients.

The Scottish ECLS programme has developed a tailored course in conjunction with the Scottish clinical simulation centre based in Stirling. Faculty are drawn from simulation staff and senior ECLS practitioners. Cognitive task analysis underpins the course content and structure. A bank of clinical scenarios has been developed that covers the range of ECLS related situations (including cannulation) and reflects a broad spectrum of clinical conditions seen in ECLS. Each scenario was story-boarded in the context of prior clinical cases to achieve defined educational objectives. These scenarios were then programmed on the simulator. Each scenario follows a predicted course and is structured so that appropriate intervention results in clinical improvement and stabilisation.

To date, all staff has received training on the simulator and the aim is to repeat the training cycle on an 18 monthly basis. We present the development process and our initial insights.

Needs assessment for developing a training program in lumbal puncture and bone-marrow aspiration in pediatric oncology

Nygaard, Ulrikka[1]; Nielsen, Henriette Svarre[2]; Schmidt, Ida Maria[1]; Nysom, Karsten[1]; Schmiegelow, Kjeld[1]; Soerensen, Jette Led[3]
[1]Copenhagen University Hospital, Rigshospitalet, Pediatric Department, Copenhagen 2100 Ø;
[2]Copenhagen University Hospital, Rigshospitalet, The Fertility Clinic, Copenhagen 2100 Ø;
[3]Copenhagen University Hospital, Rigshospitalet, Juliane Marie Center, Copenhagen 2100 Ø

Objective: To do a needs assessment of trainee doctors competences in lumbar puncture and bone marrow aspiration in order to develop a simulated training program in pediatric oncology.

Method: Audit of 30 medical records with specific attention to 5 procedures and practices during lumbar puncture and bone marrow aspiration of children in general anesthesia in 2003-2004 at the Pediatric Department, Copenhagen University Hospital, Denmark. The 5 procedures included collegial supervised administration of chemotherapy, examination of the child, the length of the bone marrow biopsy, erythrocytes in cerebrospinal fluid, and documentation of the procedures in the medical record. Anonymous questionnaire about education and training, and critical incidents among 10 trainee doctors working in the pediatric department.

Results: Four of the 5 evaluated procedures were only performed as intended in half of the cases. Furthermore, none of the doctors documented collegial supervised administration of chemotherapy. The number of months of employment was not related to better performance. Nine of 10 doctors called for structured training and education. This assessment has resulted in structured and systematic training of trainee doctors in the department, and specific training in handling chemotherapy. Needs assessment of trainee doctors by audit of medical records was a feasible method to develop a training program in terms of costs and time.

Conclusion: This needs assessment revealed that procedures and practices during lumbar puncture and bone marrow aspiration of children with malignant diseases were only handled as intended in half of the cases. Whether a structured training program including simulation can improve the performance by trainee doctors in these procedures awaits to be evaluated.

Meeting dinner

Thursday 14 February at 19.30

The meeting dinner will held at van der Nootska Palatset, a 17th Century palace only a few minutes walk from the meeting venue.
Address. S:t Paulsgatan 21

Contact details

Scientific secretariat

Eva Wesslén-Eriksson, M.D
Head of Local Organising Committee,
E-mail: eva.wesslen-eriksson@karolinska.se

Meeting secretariat

Congrex Sweden AB
Attn: IPSSW
Visiting adress: Karlavägen 108
PO Box 5619
SE-114 86 Stockholm, Sweden
Phone: +46 8 459 66 00
Fax: +46 8 661 91 25
E-mail: ipssw@congrex.com and ipssw.registration@congrex.com

Congrex Sweden AB has been appointed official Congress organiser for this event. The Congrex Group works internationally with offices in Sweden,
The Netherlands, United Kingdom and Latin America, offering integrated solutions for the association services industry and corporate and governmental meetings. For more information, please visit www.congrex.com.