1st BALTIC PAEDIATRIC CONGRESS
Spring Conference of European Academy of Paediatrics (EAP)
Annual Conference of European Confederation of Primary Care Paediatricians (ECPCP)
ECPCP European Confederation of Primary Care Paediatricians
Confédération Européenne de Pédiatrie Ambulatoire - CEPA
Session 21st may 2011 – 2 p.m.
Guest Society: American Academy of Pediatrics

The role of simulation medicine for the training of primary care paediatrician treating critically ill children

(a short overview with fotoimpressions)

Burkhard J. Wermter

Paediatric Cardiology & Intensive Care Medicine - MHH Medical School Hannover,Hannover/Germany

Burkhard_wermter@yahoo.es - www.provinz.bz.it/se/PaedNotMed

- **Wermter Burkhard Johannes (1,6,7),**
- **Rodriguez-Nunez Antonio (2,5,6,7),**
- **Iglesias-Vazquez J. Antonio (3,5,7),**
- **Sanchez-Santos Luis (4,5,7)**

- 1: MHH Medizinische Hochschule Hannover. Pädiatrische Kardiologie & Intensivmedizin – Head: A. Wessel, Germany
- 2: Pediatric Emergency and Critical Care Division. Hospital Clinico Universitario de Santiago de Compostela, Spain.
- 3: Public Health Foundation 061 de Galicia, Santiago de Compostela, Spain.
- 4: Arzua's Primary Care Center, Servicio Galego de Saude
- 5: Advanced Simulation Working Group of the Spanish Society of Primary Care Pediatrics (SEPEAP)
- 6: ERC European Paediatric Resuscitation Council, Paediatric Working Group
- *7: instructors of spanish group of Paediatric CPR*

Advanced Simulation Working Group of the Spanish Society of Primary Care Pediatrics

- www.sepeap.org
- luissanchezsantos@hotmail.com

In cooperation with

sepeap
Sociedad Española de Pediatría Extrahospitalaria y Atención Primaria

PICU Paediatric Intensive care Unit – University Hospital Santiago de Compostela, Galicia (Spain)
Emergency Association 061, Galicia (Spain)

Connections with:
Spanish Group of Paediatric Cardiopulmonary Resuscitation
Paediatric Working Group – ERC European Resuscitation council - www.ERC.edu

Table of contents

- 1) Introducation in “Simulation”
- 2) part 1: the spanish experience
- 3) Part 2: Implementation for PCP Primary Care Paediatricians in Europe (?): possibilities and financial aspects

Introduction: New York, jan. 2009

Landing with happy end

Compostela, enero 2009

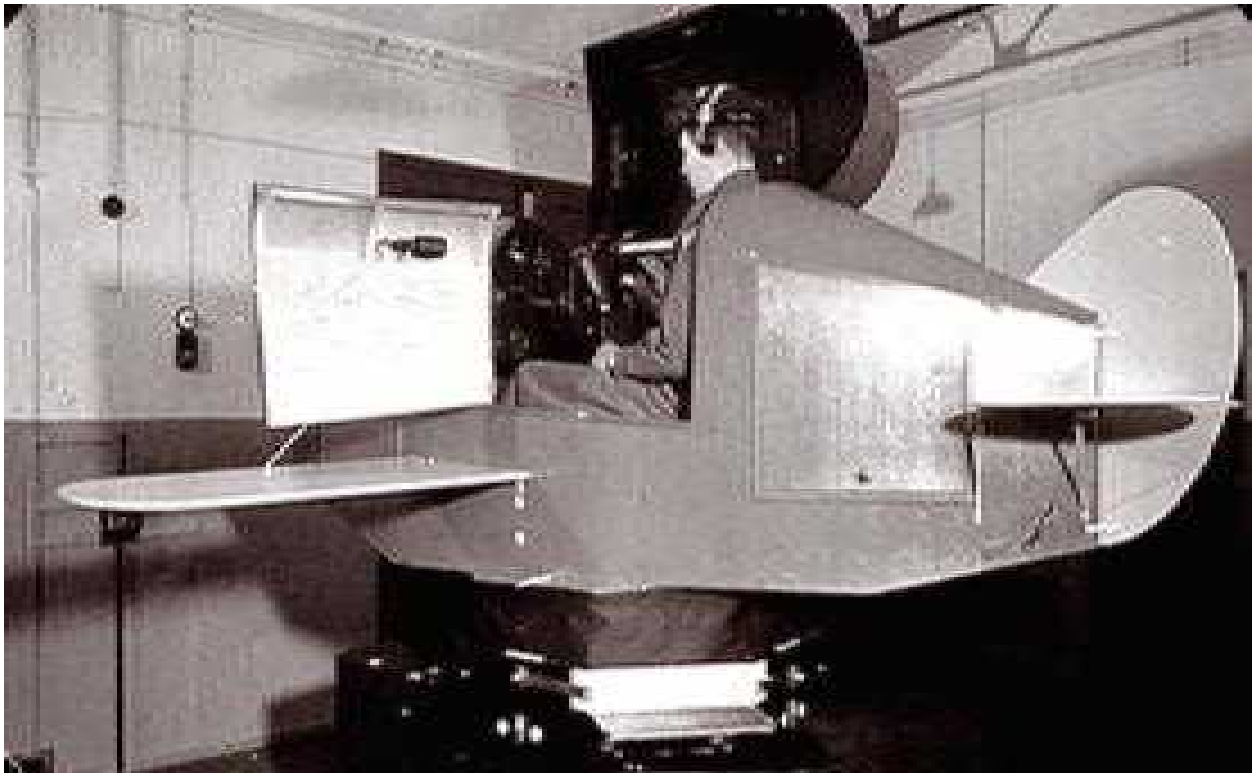
At the first attempt!

My first thorax-drainage!

¿What is the difference ? (1)

Simulation in aviation

Nothing new!



First flight simulator. Edwin Link, 1929

Standard in other fields

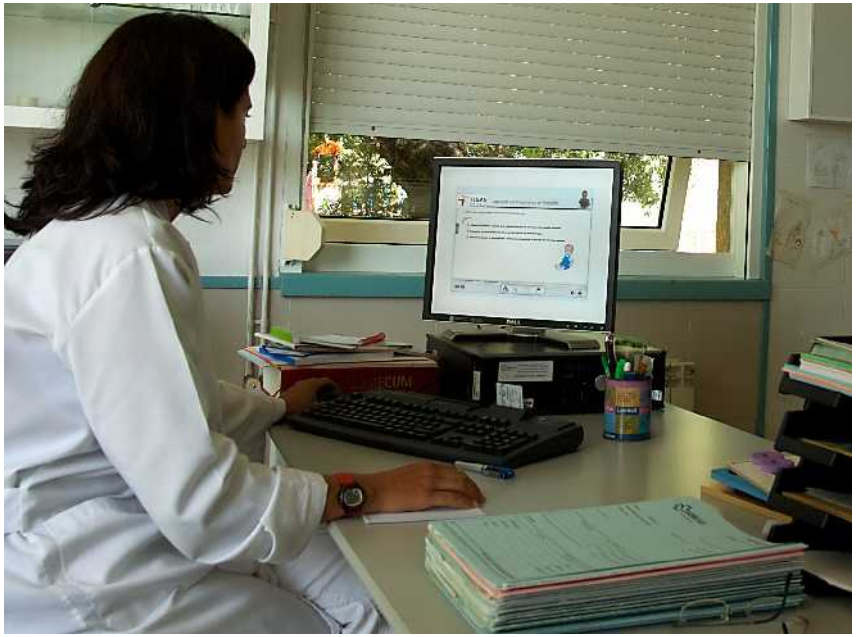
Canine Carousel

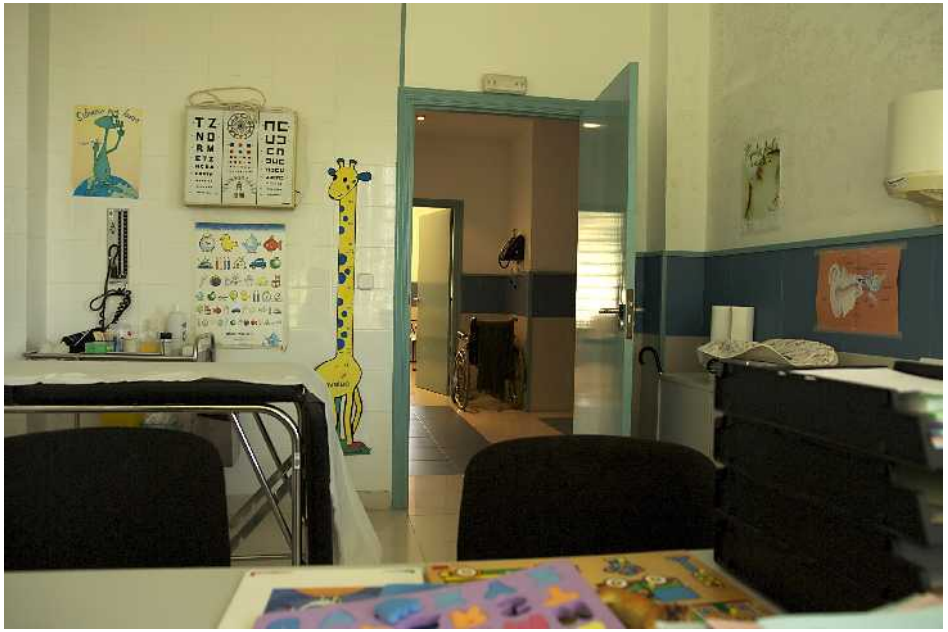
Staff Sgt. Troy Gapko swings military working dog Bronco, a 2-year-old Belgian Malinois, as the dog bites down during a demonstration at the University of Colorado, Colorado Springs Monday. Staff Sgt. Michael McMackin, left, is the dog's handler. All are members of the 148th Military Police Detachment. The demonstration was part of a recruiting mission organized by the Colorado Springs Recruiting Company's Sgt. 1st Class Raymond Hunt. The event included Fort Carson Soldiers who participated through the Total Army Involvement in Recruiting program.

Photo by Sgt. Matt Witham

Part 2: Spanish experience

- Primary care pediaticians: Who are and what they do?
- Do they need training?
- What scenarios must be simulated?
- Our experience: facts, comments and feelings





Target population:

Pediatricians working out-of-hospital

- Spain: ± 44 million inhabitants
- All children have access to "specialized" primary care:
  - Universal public insurance coverage
  - Optional private care
- Around 8.000 primary care pediatricians
  - 80 % public system / 20% private care
  - Environment: Urban-team, Rural-alone

PCP’s personal profile

- Varied background, experience and training
- Broad age range (29-69)
- Majority of women (2/1)

Standard training of pediatricians

- Hospital based
- Residence in Pediatrics in teaching hospitals (4 years):
  - Newborns
  - Emergency room
  - Inpatients (wards)
  - Night shifts
  - Other: neurology, gastreoenterology, respiratory, cardiology, critical care units,…

… BUT WITHOUT STANDARDIZED UPDATE AND RE-TRAINING

Pediatric residents

PCP at real life

PCP’s daily clinical activity

- Health child program
- A great variety of no-urgent, no-serious, no-stressful problems
- Limited patient-time allocated

- … But not-free of unexpected and potentially seriously ill children:
  - Respiratory failure
  - Seizures
  - Tachycardia
  - Anaphylaxia
  - Septic shock…

The spectrum of Primary Care Centers in Spain

PCP's perceived knowledge / skills gaps

- For common problems, they have knowledge but need re-training
  - Asthma, Croup, Bronchiolitis…

- For rare serious cases, they require skills
  - Cardiopulmonary arrest
  - Anaphylaxia
  - Septic shock
  - Trauma
  - Tachycardia….

Comparing training / working ratios

5 days/wk

90 min/wk

7 days/wk

20 min/wk

No training /wk

5 days/wk

The SEPEAP simulation based training program

- Awareness of the need
- Multidisciplinary working group design
  - Course contents
  - Scenarios
- Instructors training
- Quality control and accreditation
- Participants' input
- Updates and future proposals

Learning objectives*

- Recognition of the seriously ill child
- Assessment and re-assessment following the ABC sequence
- Crisis resource management
- Interaction with parents
- Activation of the EMS and transport team
- Contact with reference center

* Adaptable to non-pediatricians

Course contents

- Introduction to simulation and role playing

- Scenarios:
  - **A** (airway): Croup
  - **AB** (airway-breathing): Asthma, Bronchiolitis
  - **C1** (cardio-circulatory): Severe sepsis
  - **C2** (cardiac): Supraventricular tachycardia
  - **C3** (circulatory): Blunt trauma
  - **D** (disability): Coma
  - **E** (ethics): Conflictive case

Course's evaluation by participants

Non-technical skills

On site simulation (Emergency Room)

PCP at the Simulation Center

The asthma scenario

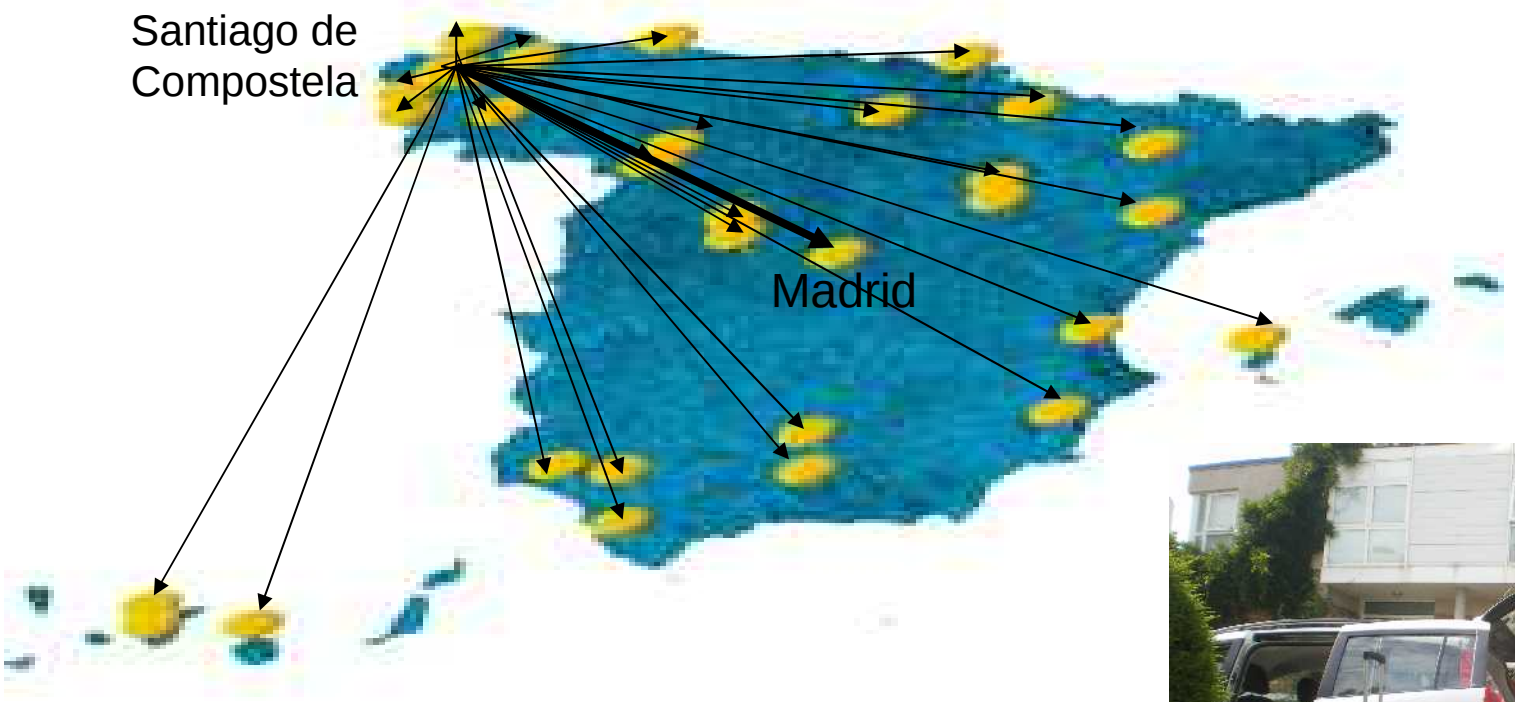
19 scenarios analyzed
Duration: 15 + 2 min

- Time to oxygen: 92 ± 80 sec
- No signal from pulse oxymeter in first 5 min: 5/19
- Inadequate nebulization of drugs: 9/19
- Transport to hospital not considered: 10/19
- Tracheal intubation attempt 3/19 (without success)

Asthma simulation score (0-16): 7.3 ± 2.6

	0	1	2
Elevate head of patient	No or it takes >5´	It takes 2-5´	Before 2´
Pulseoxymeter positioning	It takes >2´ to put it or >5´ without displaying information	It is placed between 1-2´ or 1-5´ without information	< 1´ and <1´ without information
O2 (mask or nasal cannulae)	No or it takes >5´	Between 2-5´	Before 2´
Salbutamol	No or it takes > 5´	Between 2-5´ or treat with < 3 puff inh.	<2´ and treatment nebulized or inhaled ≥3 puff.
Pulses/ capilary refill and blood pressure	No	Only one or lasting more than 5 min	Both before 5 min
Reassess the situation	No	Auscultate or consider if treatment is going.	Both
Transfer consideration	No	Before 10 min	Before 5 min
Peripheral line	It takes ≥ 2 min or it isn´t used to treat with steroids.	Not placing line	Line placed before 2 min and treat with steroids.

52 courses in 28 months (from may 2008): 832 participants



> 100.000 km

Venues

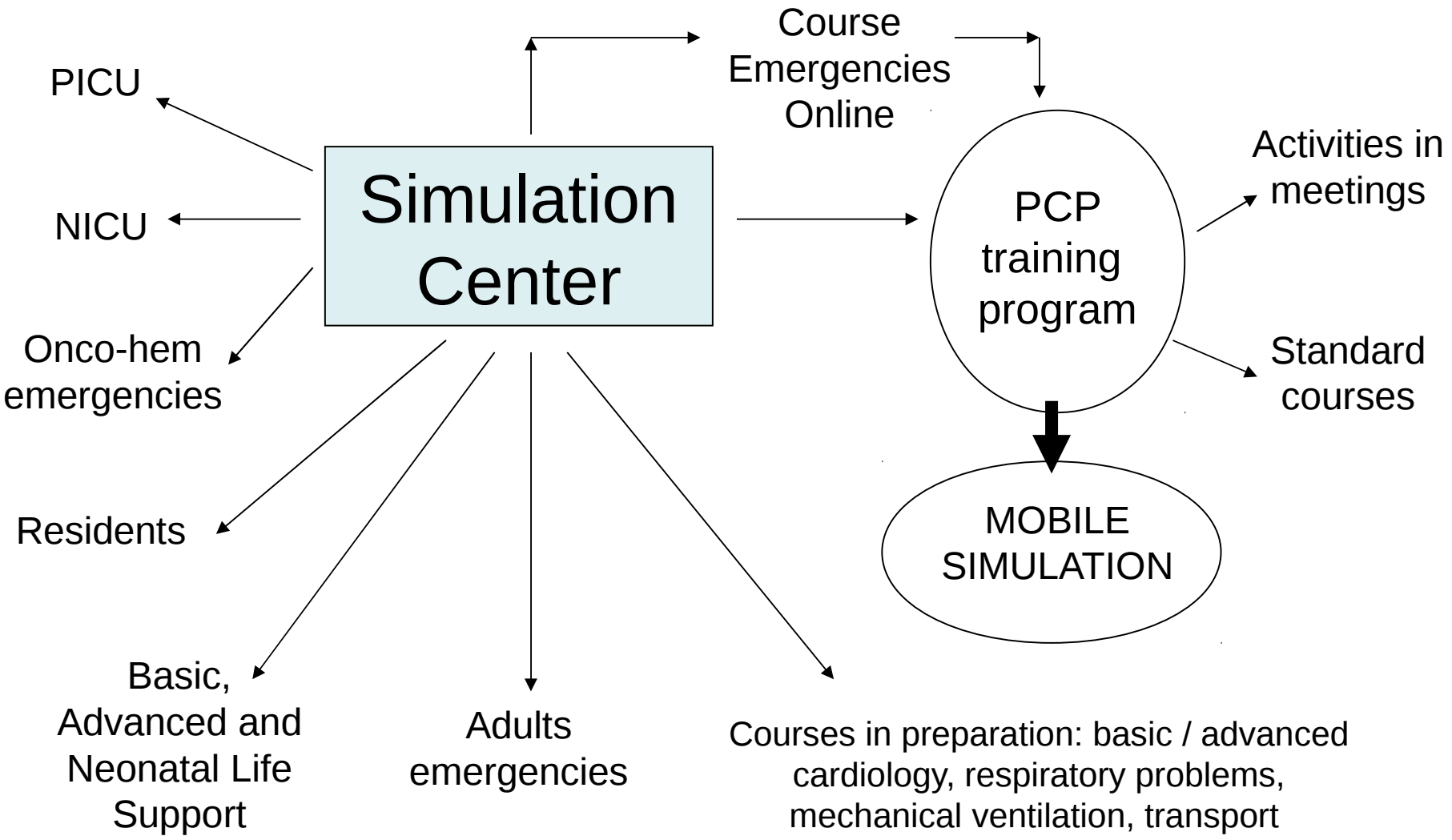
Immediate opinion of participants

N: 764

Item	Mean	SD
Previous information	8.1	1.2
Schedule and duration of course	8.7	0.4
Venue and classrooms	9.0	0.3
Documentation provided	9.0	0.4
Objectives corresponded to expectations	9.3	0.4
Subjects were relevant to the course	9.4	0.5
Course was useful for clinical practice	9.4	0.4
The teachers presented the concepts clearly	9.3	0.5
The cases reflected the reality of daily ractice	9.2	0.4
Team engagement level	9.2	0.4
Instructor – participant relationship	9.7	0.2

Scale 0 to 10

Integrating Simulation and CME



Part 2: The IMPLEMENTATION:

- **Definition of SIMULATION:**
- Various types of simulators exist,:
- from simple models to highly advanced, computer-driven systems
- From low realistic to highly realistic environment

The actors = instructors

- How to train them ?

- Stepwise approach inside a complete
- chain of training supervised by expert
- instructors

- 1) PBLS Paediatric Basic Life Support:
- Easy subject -> focus on didactical issues as instructor/team training for instructors:
- Medical students/young doctors (trained as individuals at school of medicine) learn teamwork staying in course faculty with nurses and paramedics (trained as teamplayer)

- 2) Paediatric Advanced Life Support: aquisition of more professional abilities and medical background -> more complex instructor skills

- 3) -> entrance in the world of the big game: highly advanced simulation

Ingredients:

- **Maniquins:** basic, advanced, highly advanced, actors
- Low tech -> high tech/human
- Low fidelity-> high fidelity

- **Environment**: low realistic – high realistic
- Low tech -> high tech
- Real / Virtual

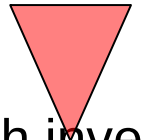
- **Comunication, Teamwork, Debriefing**

The bill? ¿¿¿€€€€ $$$$???

(What is the difference between Aviation and Medicine? (2))

- Airlines will loose aircraft (expensive) and and cabin crew (expensive) and not only the passengers…

- Health administration will loose “only” the patient, Hospital and Staff will survive !



- High investment in Simulation by airlines,

- low investment in Simulation by health administration

To begin: use existing spaces and materials in the hospital (in situ simulation) (webcams with microfones for 25€ are not so bad !)

Cooperate with Simulation Centers, Dep. of Anaesthesia, medical emergency associations and their schools

(Red Cross, St.John's Amb, Firebrigade, etc

Fotoimpressions

PBLS Paediatric Basic Life Support
Stress testing lab, Paediatric Clinic, Hannover

EPLS European Paediatric Life Support course

Trauma Scenario Station (garden of paediatric clinic)

EPLS, Firebrigade Hannover Sep 2010, vascular access skill station

Red Cross Simulation Center Hannover, Sept 2009

Firebrigade Hannover, Sept 2008, in cooperation with DRF-Luftrettung (german Air Rescue) & White Cross Southtyrol

Red Cross Simulation Center Hannover, Nov. 2010

Lou Halamek, CAPE, Lucil Packard Children Hospital, Stanford, California (USA) - instructor NRP Newborn resuscitation Programm .
AAP American Academy of Pediatrics


Deutsches
Rotes
Kreuz

Real children in Paediatric Trauma training

Video http://www.provinz.bz.it/se/west/mup-paednotmed/orf.wmv

Brixen/Bressanone –Southtyrol, oct. 2008 – in cooperation with White Cross Southyrol & DRF-Luftrettung (German Air Rescue)

Combination of module of spanish paediatric trauma course AITP and advanced simulation

Conclusions

- PCP may improve their abilities by means of advanced simulation
- Simulation courses must be adapted to the target population needs
- Participants' feed-back is positive, immediately and at long-term
- Simulation Centers should consider programs directed to PCPs
- Broad range of simulationpossibilities for all budgets are existing
- European Implementation for Simulation courses for PCP is easy

How to start?

connect with people with experiences

4th IPSSW 26th-27th oct.2011 Toulouse - France
www.ipssw2011.com

IPSS International Paediatric Simulation Society

Speakers abstract published

in

"Proceedings of the 1st Baltic Paediatric Congress"

Dr. Cemach Shabad (1864-1935)
More information

in

Paediatric Pulmology and Allergology – VAIKU PULMONOLOGIJA IR ALERGOLOGIJA 2011,gegužė, XIV tomas, Nr. 1, p.49-50

- an official journal of

Lithuanian Paediatric Society

Presentation on www.provinz.bz.it/se/PaedNotMed