Cesma meeting
stefan.hallin@orzone.com
VR to OR – first transfer of skills study

- Example: The study by Seymour et al from 2002.
- Simulator-trained residents operated 29% faster
- Control group 600% more errors.

Figure 5. Total number of errors scored per procedure for VR and ST groups. The mean number of errors per procedure was significantly greater in the ST group than in the VR group ($P < .006$).
What comes next?

- Sub-optimal performance in non-technical skills (teamwork, leadership, communication) is common\(^1\) and can lead to errors\(^2\) and poor outcomes.\(^3\)

- Lack of team communication caused 43% of errors in surgery.\(^4\)

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Trends We See Within Medical Training (impact on assessment methods)

Technical skills training becomes non-technical and technical skills training
• Strong support in literature
• Necessary step to improve patient safety

• Focus on medical doctors shifts to the whole team
  o Natural step when communication skills etc. are trained

• Training of a single process step turns into a comprehensive process approach
  o Virtual hospitals, training from admission to discharge
From the learning objectives the modes of delivery should be established. These can in many cases be combined for maximum effect:

- Powerpoint presentations
- Live case (video based)
- E-learning, through classroom or self-study materials
- Manufactured anatomical parts (e.g. plastic models)
- Knowledge based (e-learning with MCQs and educational material)
- Technical skills simulators for operators
- Animals and/or cadavers
- Using real or fabricated medical products (e.g. realistic operating theatre or clinical products)

Example of high end multi disciplinary, team based training/assessment
Portfolio

A curriculum based tool for training and assessment

Individual web based log book for training, accreditation and revalidation

Keep track of your knowledge skills and professionalism

Facilitate administration
Add latest studies and procedures

Harmonise medical curricula and assessments supporting cross-border qualifications according to the EU Directive 2005/36
Validating the Methodology of Online Examination of Medical Specialists
A Technical Review of the ESA OLA Pilot Exam of 2011
Ortrac

Ortrac (e-platform) is a web application for harmonisation of postgraduate training, accreditation and revalidation. The application is developed through a joint venture with UEMS (European Union of Medical Specialists) and Ozone.

One of the aims with the platform is to offer UEMS associated bodies, i.e. National Societies and National Authorities, appropriate tools for integration of harmonised curricula into daily practice. Ortrac essentially supports the following core processes:

- keep track of trainee progress towards becoming a medical specialist.
- create and maintain formative and summative assessments.

To become a user of Ortrac you must be a Doctor in training or a qualified Specialist. Please request a personal account through your local Society, National Authority or your UEMS representative.
Checklist for Browser and Software compatibility
Writing questions

The administration tool in Ortrac provides a feature for creating questions in a rich and secure environment.
Rewieving Questions

Ortrac provides a easy to use Framework for reviewers of questions and tests
Writing Tests

The authoring tool for test creation within Ortrac delivers a time saving and easy to use method.
Adding Questions to Test

- Search of the question data bank
- Easy locate for the test already reserved questions
- Browser functionality
Reviewing Tests

Reviewers can approve or reject a test with comment functionality on required changes.
Scheduling of Exams

Test can be made in different time zones
Rewiewing Tests in Preview mode

Preview mode shows all questions the exact way as they will appear
Taking Tests

Throughout the test candidates have access to an intuitive overview of the entire test.
10 countries, 15 cities
A mix of urban and rural areas – 131 participants

<table>
<thead>
<tr>
<th>OLA Centre</th>
<th>Participants invited</th>
<th>Attending participants</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ankara</td>
<td>7</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td>Bucharest</td>
<td>18</td>
<td>15</td>
<td>83%</td>
</tr>
<tr>
<td>Cork</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Girona</td>
<td>10</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Jakarta</td>
<td>25</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>10</td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>Liège</td>
<td>2</td>
<td>2</td>
<td>100%</td>
</tr>
<tr>
<td>Ljubljana</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>London</td>
<td>2</td>
<td>2</td>
<td>100%</td>
</tr>
<tr>
<td>Madrid</td>
<td>8</td>
<td>7</td>
<td>86%</td>
</tr>
<tr>
<td>Malatya</td>
<td>25</td>
<td>18</td>
<td>72%</td>
</tr>
<tr>
<td>Malta</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Manisa</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Sanliurfa</td>
<td>4</td>
<td>4</td>
<td>100%</td>
</tr>
<tr>
<td>Valencia</td>
<td>19</td>
<td>18</td>
<td>95%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>149</strong></td>
<td><strong>131</strong></td>
<td><strong>88%</strong></td>
</tr>
</tbody>
</table>

Table 1. Geographic distribution of participants.
Max capacity – 1 million examinations/year
Result

- Current IT infrastructure, even in rural areas is sufficient – 99.994% uptime in pilot
- Redundancy works – 100.000% data integrity (no data loss)
- Works with different computers etc
- Capacity sufficient
- Logistic works (supervisors etc)
Individual web based log book for training, accreditation and revalidation

Facilitate administration
Add latest studies and procedures

Harmonise medical curricula and assessments supporting cross-border qualifications according to the EU Directive 2005/36

Portfolio – additional functionality

A curriculum based tool for training and assessment

Keep track of your knowledge skills and professionalism
Taking Tests

In formative tests, candidates are given immediate feedback once the test is finished.

Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic / Objective</th>
<th>Time</th>
<th>% Correct</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-09-06</td>
<td>Topic 4 (4.1)</td>
<td>00:13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results

Question 1

Which of the following is considered standard view of Left Coronary Artery (LCA)?

- LAO 40, caudal 30
- RAO 10, caudal 40
- LAO 50, caudal 10
- RAO 10, cranial 10
- AP, cranial 5
Export of results and statistics

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Mean</th>
<th>Point Biserial Correlation Coefficient</th>
<th>Item Discrimination Statistics (33%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.25</td>
<td>0.32</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>0.25</td>
<td>0.30</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>0.75</td>
<td>0.18</td>
<td>1.00</td>
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<tr>
<td>4</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td>0.25</td>
<td>0.67</td>
<td>0.50</td>
</tr>
</tbody>
</table>
Security benefits

• If MCQ tests are reviewed and sent as attachments
  o Attachments are printed – can be seen by others
  o Public computers – others can read attachments
  o Attachments forwarded – read by non-authorised

• How does Orzone manage this
  o Documents can be labeled to be non-printable
  o Login and logout automatical. Doesn’t matter if person have access to public computer (can still not access MCQs)
  o Reviews can only be forwarded to authorised persons
Cost/Financial benefits

- Online is not only safer, it is more flexible and cost-effective
  - A test room can be opened anywhere
    - For supervised tests, wherever there is a supervisor and student(s)
    - For non-supervised tests – wherever there is a student
    - No cost for room setup
  - No cost for paper test administration (scanning, reporting)
    - Can be hundreds of euros per test
  - Retain knowledge
    - Information is stored on difficulty of questions, time to respond etc
  - Faster to create new tests
    - Use knowledge automatically from previous tests (difficulty, time etc)
    - Less time to administer and create tests
  - Easy to create new learning/test opportunities
    - Opportunity for new revenue streams
Putting the pieces together

Assemble all aspects of learning and assessment
Medical Curriculum

PREFACE

Since the last revision of the APA/COMSEP General Pediatric Clerkship Curriculum revision in 2002, medical student educators have had to respond to a variety of external and internal forces. The first was the ubiquitous implementation of the Accreditation Council Graduate Medical Education (ACGME) Outcomes Project. This document specified that graduate medical education should be grouped around six core competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. A major effect of the Outcomes Project is that most curricula are now specifically organized around competencies. The second major external influence has been the updating and revision of the Liaison Committee on Medical Education (LCME) Standard number 2 (ED-2). This standard clearly states that each clerkship must identify the types and numbers of patients that must be seen during the clerkship, the level of student involvement in the care of those patients, and the setting in which the care occurs. Moreover, each clerkship must have in place a system to monitor whether students are able to see the required number and types of patients and be able to make corrections during the clerkship experience. This has had an enormous impact on clerkships, as clerkship directors can no longer assume that students will have a broad clinical experience. Finally, many have recognized for some time that the Core Curriculum is quite extensive. The curriculum was originally intended to guide the pediatric curriculum during the entire medical school experience. Nonetheless, clerkship directors have struggled with what competencies to address during their clerkships.

To address these issues a great number of COMSEP members have participated in the revision of the Curriculum. The COMSEP Curriculum and Evaluation Task Forces and the APA Medical Student Education Special Interest Group worked together for over two years to finish the current revision. The Clerkship Directors are deeply indebted to the enormous time and energy these individuals dedicated to the project. A listing of the participants can be found in the Appendix.

The 2005 Curriculum differs from the previous curriculum in several important ways. First, the curriculum has been organized explicitly as a competency-based curriculum. While the original chapter heading have been retained, the content has been assigned to knowledge or skills-based competencies. Secondly, each competency in the curriculum has been designated as either a universal (U), core pediatric (CP), or mastery (M) level competency. Competencies designated as universal are not unique to Pediatrics but are generally important throughout the medical school curriculum. For example, many professionalism competencies are universal. Core pediatric competencies are those that are essential and or unique to the Pediatric Clerkship experience and should be emphasized during the pediatric clerkship. Students should be able to demonstrate these competencies on the ABIM In-Training Exams (ABIMITE). The core competencies are divided into skills required for the ABIMITE. Lastly, the 2005 Curriculum includes outcomes-based education for both the didactic and clerkship experiences. This allows students to demonstrate competency in each of the eight domains of the ACGME Outcomes Project.
### Orsync Task Grid

**Procedure: WHO checklist**

<table>
<thead>
<tr>
<th>Coordinator</th>
<th>First operator</th>
<th>Scrub nurse</th>
<th>Anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sign in 1.1</strong></td>
<td><strong>Time out 2.1</strong></td>
<td><strong>Time out 2.1</strong></td>
<td><strong>Time out 2.1</strong></td>
</tr>
<tr>
<td>Patient has confirmed <em>Identity</em> <em>Site</em> <em>Procedure</em> <em>Consent</em></td>
<td>Confirm all team members have introduced themselves by name and role.</td>
<td>Confirm all team members have introduced themselves by name and role.</td>
<td>Confirm all team members have introduced themselves by name and role.</td>
</tr>
<tr>
<td>Completed: 00:01:09</td>
<td>Completed: 00:01:09</td>
<td>Completed: 00:01:09</td>
<td>Completed: 00:01:09</td>
</tr>
<tr>
<td><strong>Sign in 1.2</strong></td>
<td><strong>Time out 2.2</strong></td>
<td><strong>Time out 2.2</strong></td>
<td><strong>Time out 2.2</strong></td>
</tr>
</tbody>
</table>
| Site marked/Not applicable | Surgeon, Anaesthesia professional and nurse verbally confirm  
  - Patient  
  - Site  
  - Procedure | Surgeon, Anaesthesia professional and nurse verbally confirm  
  - Patient  
  - Site  
  - Procedure | Surgeon, Anaesthesia professional and nurse verbally confirm  
  - Patient  
  - Site  
  - Procedure |
| Missed: 00:01:09 | Completed: 00:01:09 | Completed: 00:01:09 | Completed: 00:01:09 |
| **Sign in 1.4** | **Time out 2.3** | **Time out 2.3** | **Time out 2.3** |
| Brief resusciator on patient and functioning | Anticipated critical events Nursing team reviews. Map, stability | Anticipated critical events Nursing team reviews. Map, stability | Anticipated critical events Nursing team reviews. Map, stability |
| | | | |
### Logbook

<table>
<thead>
<tr>
<th>Status</th>
<th>Name</th>
<th>Location/Event</th>
<th>Date</th>
<th>Your Role</th>
<th>Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending</td>
<td>Bone Marrow aspiration</td>
<td>Methodist Hospital</td>
<td>2011-08-11</td>
<td>Unsupervised</td>
<td>David Hedlund</td>
</tr>
<tr>
<td>Pending</td>
<td>Lumbar puncture</td>
<td>University of Medicine</td>
<td>2011-05-02</td>
<td>Observer</td>
<td>David Hedlund</td>
</tr>
<tr>
<td>Pending</td>
<td>Obtaining vesicular and pastula</td>
<td>Cleveland Clinic</td>
<td>2011-08-02</td>
<td>Supervised</td>
<td>David Hedlund</td>
</tr>
<tr>
<td>Pending</td>
<td>Throat swab for Culture</td>
<td>Intensive Care</td>
<td>2011-08-22</td>
<td>Supervised</td>
<td>David Hedlund</td>
</tr>
<tr>
<td>Pending</td>
<td>Defibrillation</td>
<td>Rikshospitalet</td>
<td>2011-07-13</td>
<td>Supervised</td>
<td>David Hedlund</td>
</tr>
<tr>
<td>Pending</td>
<td>Performing an ECG</td>
<td>Ortho 2</td>
<td>2011-07-14</td>
<td>Unsupervised</td>
<td>David Hedlund</td>
</tr>
</tbody>
</table>
Key challenges to implement a coherent e-portfolio

• Easy to use
• Curriculum driven
• Balance between central governance and local flexibility. Must be able to adapt at national and integrate at local hospital level. Become part of daily life.
• Integration with CME/CPD etc
• Must support broad range of training methods and assessment methods (much more than just MCQs)

• Finally – there are >900 clinical skills centers globally - little collaboration and coordination – Opportunity for future
Cesma meeting
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