Innovative Ways to Educate Surgeons in a Changing Time

Lenworth Jacobs, MD, MPH, FACS
Professor of Surgery
Chairman
Department of Traumatology and Emergency Medicine
University of Connecticut
Experiential Learning

Time Based
Enhanced by Repetition
Mentor Driven

Competence Based Learning
Curriculum Driven
Sequential Benchmarks
Verification of Competence
Competence Based Learning

Progress at Learners Pace
Must Pass Milestone to Continue
Difficulty in Scheduling
Rotation Disruptions
Utilization of Simulation Experience: To Advance or To Remediate Performance
Progress to Competence
Verification of Learning
by Objective Evaluation
Oral or Written Exams

Technical Skill Validation
Simulation Lab
Operating Room
## Surgical Resident Training: Hours per Week

<table>
<thead>
<tr>
<th>Country</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>80 hours</td>
</tr>
<tr>
<td>Canada</td>
<td>72 hours</td>
</tr>
<tr>
<td>Ireland</td>
<td>70 hours</td>
</tr>
<tr>
<td>Australia</td>
<td>68-75 hours</td>
</tr>
<tr>
<td>New Zealand</td>
<td>72 hours</td>
</tr>
<tr>
<td>Taiwan</td>
<td>70 hours</td>
</tr>
<tr>
<td>Brazil</td>
<td>60 hours</td>
</tr>
<tr>
<td>Great Britain</td>
<td>54 hours</td>
</tr>
<tr>
<td>Switzerland</td>
<td>50 hours</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>48 hours</td>
</tr>
<tr>
<td>Denmark</td>
<td>42 hours</td>
</tr>
<tr>
<td>Germany</td>
<td>40 hours</td>
</tr>
<tr>
<td>Belgium</td>
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</tr>
<tr>
<td>Sweden</td>
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</tr>
<tr>
<td>France</td>
<td>35 hours</td>
</tr>
<tr>
<td>Norway</td>
<td>35 hours</td>
</tr>
</tbody>
</table>

Richard Resnik
Simulated Education

Aviation
Psychomotor Skills
Cognitive Skills
Complex Decision Making
PILOT TRAINING
NASA Deep Space Probe
Space Station
Simulation Laboratory

Static Skill Trainers
Dynamic Trainers
Bio Lab Experiences
Practice in the Lab
Perfect on the Patient
DEVELOPING TRAUMA TEAM COMPETENCY

• Identify all components of a resuscitation
• Identify critical behaviors
• Establish tasks which must be successfully completed
• Develop timeline for completing each task
Management of Surgical Airway

Severe neck laceration
Fractured larynx
Disrupted anatomy
Summary
Paradigm Shift
Practice in the Non Human Environment
Cognitive and Skill Verification
Team Performance
Use of Simulation
Safer, More Effective, Efficient