The EWTD - can simulation training help?
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Outline of presentation

- Define simulators & simulation
- Consider simulation in the context of the EWTD and patient safety
- Describe the technology available and outline some potential uses
- Describe benefits of full-scale simulation with examples
- Consider the potential for integrating simulation into training

Healthcare organisations & simulation

- Emphasis on the role of simulation laboratories to expose staff to risk situations with no actual patients involved

Building a safer NHS for patients, DoH 2001

- "...high fidelity simulators have given foundation doctors valuable opportunities for deepening their understanding of the importance of communication skills and teamwork when managing acutely ill patients..."

Foundation Year Curriculum 2007

- "...Programme providers are invited to use up to a maximum of 300 hours to provide clinical training within a simulated practice learning environment in support of providing direct care in the practice setting...


Is the EWTD the only driver?

- "There should be no learning curve as far as patient safety is concerned..."


...There is an ethical obligation to make all efforts to expose health professionals to clinical challenges that can be reasonably well simulated prior to allowing them to encounter and be responsible for similar real-life challenges..."


Learning curve for practical procedures

What is "simulation"?

Simulator:
"Any device or system that simulates specific conditions or the characteristics of a real process for the purposes of operator training or research."

Collins English Dictionary 2001

Simulation:
"...a technique - not a technology - to replace or amplify real patient experiences with guided experiences (artificially contrived) that evoke or replicate substantial aspects of the real world in a fully interactive manner..."

Gaba, QSHC 2004; 13: i2-10
Available techniques and technology

1. Verbal role play*
2. Standardised patients*
3. Part-task trainers – including VR & haptic systems
4. Computer-screen based patients
5. Electronic manikins – instructor or model-driven

* Require no technology

Verbal role play

“What would you do if…..”

Standardised [simulated] patients

- Trained patient
- Professional actor
- Faculty member
- Learners

Part-task trainers

Part-task trainers plus simulated patients

Integrated
Procedural
Performance
Instrument

Part-task trainers plus simulated patients
Electronic manikins

High fidelity simulation centres

Laerdal MicroSim™

METI HPS®

- Reactive pupils
- Blink
- Voice
- Breakaway teeth
- Nasogastric tube insertion
- Tracheal intubation
- Cricothyroid puncture
- Independent breathing + sounds
- ECG
- Defibrillation
- Cardiac pacing
- CPR
- Mechanical ventilation
- Needle chest decompression
- Chest tube insertion
- Interchangeable genitalia
- Urine output
- I.V. cannulation
- Pericardiocentesis
- Thoracostomy
- Pericardial puncture
- Cardiac ultrasound
Benefits of immersive simulation training

- No risk to patient
- Repeated practice of same scenario possible
  - same trainee
  - different trainee
- Rare or difficult cases can be presented
- Complexity and time course of scenario controllable
  - ability to stop & go back
- Different outcomes possible, depending on treatment
- Instant feedback
- Human factors/patient safety training
  - communication
  - leadership
  - team work
  - problem solving

Video examples

- FY1 clip 1
- FY1 clip 2
- FY1 clip 3

- Critical Care trainees clip 1
- Medical Assessment Unit trainees clip 1
- Medical Assessment Unit trainees debrief

Pyramid of Learning

- Behaviour
  - Does
  - Shows how
  - Knows how
  - Knows

Integrating simulation into training

<table>
<thead>
<tr>
<th>Simulation/technology</th>
<th>Description</th>
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<tbody>
<tr>
<td>Airway</td>
<td>Simple airway manoeuvers &amp; airway adjuncts, surface O2, mask O2, BVM, Airway ARDS, Right main stem failure to intubate</td>
</tr>
<tr>
<td>Airway</td>
<td>Suction, Oxygen therapy, Video-laryngoscopy, Failed intubation drill</td>
</tr>
<tr>
<td>Airway</td>
<td>Airway Technique, Video-laryngoscopy, Failed intubation drill</td>
</tr>
<tr>
<td>Ventilation</td>
<td>BVM, CVV ventilators, Brennan monitors</td>
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<tr>
<td>Fluid &amp; Drugs</td>
<td>Intravenous fluid, Adjuncts, Video-laryngoscopy, Failed intubation drill, Setting up in bed, sphygmomanometer, Copious bleeding, Cardiac arrest</td>
</tr>
<tr>
<td>Fluid &amp; Drugs</td>
<td>Hypovolaemic shock, Septic shock, Cardiogenic shock, Futility</td>
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<tr>
<td>Fluid &amp; Drugs</td>
<td>Integrated into scenario</td>
</tr>
<tr>
<td>Transfer of Patients</td>
<td>Transfer of patients, Transport ventilators, Transport monitors, BVM, Failed intubation</td>
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<tr>
<td>Integration into Training</td>
<td>Integrated into scenario</td>
</tr>
</tbody>
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Integrating simulation

- Initial skills training prior to clinical practice
- Refresher training
- Assessments - formative vs summative, DOPS, mini-CEX
- Initial test of competence - e.g., RCA
- Graduation and higher examinations
- Recertification/revalidation
- Managing the failing doctor?
- Review of critical incidents

Summary

- We have......
  - Defined simulators & simulation
  - Considered simulation in the context of the EWTD and patient safety
  - Described the technology available and outline some potential uses
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  - Considered the potential for integrating simulation into training