An Innovative and Cost-Effective Undergraduate Surgical Skills Course

Dr. Ben C. Rymer¹, ², Dr. Jack W. Penn¹, ²

1. University of Southampton, Southampton, United Kingdom; 2. Southampton Surgical Society

**Background**

- Surgical skills courses carry high attendance fees, which often put them financially out of reach for undergraduate medical students.
- Local centres wanting to run these are prohibited themselves by the high cost of course materials, such as artificial skin, tendons and “prepared for purpose” animal tissues.
- Subsequently, undergraduates risk delaying their development of core surgical skills until well into their postgraduate years.

**Aims**

- To provide a course for undergraduate students that introduces, teaches and develops a range of core surgical skills, using innovative approaches to minimise course costs.

**Participants and Structure**

- 25 medical students from Southampton Medical School, across all year groups, attended.
- Course fee: £5.
- The course was run over 4 evenings on consecutive weeks.

<table>
<thead>
<tr>
<th>Skill Taught</th>
<th>Materials Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendon Repair</td>
<td>Pigs’ trotters (3 for £1)</td>
</tr>
<tr>
<td>Skin Flaps</td>
<td>Pancakes</td>
</tr>
<tr>
<td>Suturing</td>
<td>Pigs’ trotters (3 for £1)</td>
</tr>
<tr>
<td>Bowel Anastomosis</td>
<td>Bicycle inner tubing</td>
</tr>
<tr>
<td>Scalpel Technique</td>
<td>Pancakes</td>
</tr>
<tr>
<td>Excision of Skin Lesion</td>
<td>Pancakes</td>
</tr>
<tr>
<td>Knot Tying</td>
<td>Expired sutures – kindly supplied by Southampton clinical skills department</td>
</tr>
<tr>
<td>Gloving and Gowning</td>
<td>Reusable gowns and expired gloves – kindly supplied by Southampton clinical skills department</td>
</tr>
</tbody>
</table>

**Results**

- **Relevance (Scaled out of 10):**
  - Basic Suturing and Knot Tying: 9.1
  - Gloving and Gowning, Instrument Handling and Wound Debridement: 7.5
  - Bowel Anastomosis and Abdominal Closure: 8.2
  - Tendon Repair and Emergency Airways: 8.6

- **Overall Rating (Scaled out of 10):**
  - Basic Suturing and Knot Tying: 8.6
  - Gloving and Gowning, Instrument Handling and Wound Debridement: 7.1
  - Bowel Anastomosis and Abdominal Closure: 8.4
  - Tendon Repair and Emergency Airways: 9.1

**Conclusions**

- “Generally really professional comprehensive course covering very important skills for surgery.”
- “I feel it has given me a good idea of some of the basic skills required in surgery.”
- “As I started my surgical attachment shortly after, the skills that I learnt at this session were immensely helpful.”
- “The bike tyres were a very nice way of seeing how to do an anastomosis”

- With improvisation, cost-effective and educationally relevant surgical skills courses can be provided.
- These low cost surgical skills courses can improve access for undergraduates.
- Earlier acquisition of practical skills can subsequently occur; especially relevant given modern reductions in operating time.