Surgical Skills course

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Introduction
The marked variability in the results of surgical operations in any country, or even in the same hospital, has been attributed to lack of uniformity of technical expertise. It has been shown that technical factors probably constitute the main determinant in post-operative complications1. A skilfully performed operation comprises 75% decision making and 25% manual dexterity. Traditionally dexterity has had a low priority with respect to the skills required by surgical residents. Technical skills are usually acquired from experience as an assistant in the operating theatre. Many surgeons have been raised on the "see one, do one, teach one philosophy"2. However the mere seeing of one does not imply the ability to do one.

Craft workshops were developed in England during the mid 1970s to foster the art of surgery. Technical-skills workshops and courses have been gaining prominence in response to a perceived need for formal instruction in surgical skills2. Nakayama and Steiber3 noted that many interns had not performed basic procedures as students and suggested that this represented deficiencies in the medical curricula. In 1978 Lazaro et al4 recommended that instruction be carried out on a planned basis and that the dog laboratory be used for the teaching and practice of surgical procedures.

It was with such a background that, in 1997, the Department of Surgery at Makerere University, jointly with the Canadian Network for International Surgery (CNIS) organised two Essential Surgical Skills (ESS) workshops with a purpose of introducing this relatively new method of teaching surgical skills to trainees.

This paper details our experience with an ESS course and evaluation of the results obtained from 93 participants at the ESS workshops.

Materials and methods
The main objective of the ESS course was to introduce a practical and easy method of teaching basic life saving skills to trainees at Makerere University Medical School using simulators. Management skills were also taught using case studies.

Natural and artificial simulators used included mannikins, animal tissues such as bovine intestines, forelegs and goat thoraces. Knot-tying boards were also provided. Sutures with expired dates were used.

The course content, summarized in Appendix A, consisted of 38 life saving basic skills taught in the following course units:
- introduction
- fundamentals of surgery
- life support and anaesthesia
- gastrointestinal emergencies
- obstetrical and genitourinary emergencies and
- orthopaedics and trauma

The duration of the course was five days.

A questionnaire was completed by the participants at the end of the course. Participants were required to indicate whether they strongly agreed, disagreed or strongly disagreed with each question. They were also required to make an overall assessment of the course and to make recommendations on the course.

Participants who responded to the questionnaire included 8 surgeons, 29 postgraduate trainees and medical officers, 19 interns and 37 undergraduate trainees

**Results**

There was a consensus by all categories of participants that the course content was relevant to the objectives of the workshop. The introduction was regarded as useful to undergraduate trainees by 89% of the participants while over 90% regarded the other parts as useful (Table 1).

As asked about the effectiveness of case-based learning, 97% regarded case-based learning as being effective. All participants who responded approved the use of simulators in the under-graduate curriculum (Table 2). Participants were less

<table>
<thead>
<tr>
<th>Course topic</th>
<th>SA</th>
<th>A</th>
<th>DA</th>
<th>SDA</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>67%</td>
<td>22%</td>
<td>1%</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Fundamentals of surgery</td>
<td>77%</td>
<td>14%</td>
<td>2%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Anaesthesia</td>
<td>81%</td>
<td>14%</td>
<td>1%</td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>And life-support</td>
<td>66%</td>
<td>26%</td>
<td>3%</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>70%</td>
<td>22%</td>
<td>1%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Obstetrical &amp; GU</td>
<td>71%</td>
<td>24%</td>
<td>3%</td>
<td></td>
<td>2%</td>
</tr>
</tbody>
</table>

enthusiastic about their use for postgraduate training (Table 3).

Fifty five percent of those who responded regarded the 3rd year as being the most appropriate period for conducting the ESS course while 26% recommended the final or 5th year. The rest proposed the 1st year (6%), 2nd year (10%) or 4th year (3%). A course duration of 7 days rather than the 5 days was recommended by 53% of those who responded. The participants gave their overall assessment of the course as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>SA</th>
<th>A</th>
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<th>SD</th>
<th>NR</th>
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</thead>
<tbody>
<tr>
<td>Surgeons (n=8)</td>
<td>38%</td>
<td>25%</td>
<td>25%</td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td>MOs &amp; SHOs (n=29)</td>
<td>21%</td>
<td>28%</td>
<td>21%</td>
<td>4%</td>
<td>28%</td>
</tr>
<tr>
<td>Interns (n=19)</td>
<td>5%</td>
<td>21%</td>
<td>47%</td>
<td>21%</td>
<td>5%</td>
</tr>
<tr>
<td>MB Ch.B students</td>
<td>22%</td>
<td>16%</td>
<td>25%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Overall (n=93)</td>
<td>19%</td>
<td>24%</td>
<td>25%</td>
<td>16%</td>
<td>15%</td>
</tr>
</tbody>
</table>

No participant regarded the course as fair or bad.
Appendix A

Introduction
- The development and evaluation of an ESS curriculum
- leadership and the doctor
- introduction to case based learning

Unit one: fundamentals of surgery
- knot tying
- laceration repair
- simple procedures e.g field block, abscess drainage and skin grafts
Resuscitation
Heimlich manoeuvre
one person CPR
two person CPR

Unit two: life support and anaesthesia
- intubation (adult and infant)
- chest tube insertion
- cricothyroidotomy
- intravenous cut down
- regional anaesthesia
- ketamine

Unit three a: gastrointestinal emergencies
- laparotomy - opening the abdomen
  continuous closure
  interrupted figure of eight closure
  retention suture
  repair of perforations
  patching of perforated duodenum
  repair of bowel lacerations
  bowel resection
  colostomy or ileostomy
  bowel anastomosis
  sigmoid volvulus, sigmoidoscopy

Unit three b: obstetrical and genitourinary emergencies
  vaginal delivery
  normal delivery
  shoulder dystocia
  vacuum extraction
  breech delivery
  culdocentesis
  caesarian section
  cystostomy

Unit four: orthopaedics and trauma
- casts and splints
- upper extremity
- lower extremity
- bivalves and windows
- traction
- skin traction
- skeletal traction

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References