The Handbook: Introducing Local Basic Laparoscopic Training

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Introduction

Insufficient training highlighted.....
• 2016 National Laparoscopic Survey of RCOG trainees demonstrated 70% felt laparoscopic training in their deanery was insufficient for training needs\(^1\).
• Reasons multifactorial: Gynaecology training overshadowed by Obstetrics; Pressures from rota gaps & demands of service provision; Consultants under pressure to meet service demands.

There is a need to train the future generation of laparoscopic surgeons.....
• There is limited universal access to Gynaecologists with advanced laparoscopic skills and a higher percentage of abdominal procedures are performed in the UK compared to other European countries.
• There have been attempts to address this with programmes such as the National Laparoscopic Hysterectomy Pilot Programme, but acquiring even intermediate laparoscopic skills requires a solid foundation and these basic competencies can be achieved utilising simulation.

Personal responsibility.....
• Trainees need to take responsibility. In the National Laparoscopic Survey\(^1\) 74% of trainees who have access to a laparoscopic box or virtual reality trainer do not make use of this resource.
• At a Trust level, we need to ensure these resources are available, conveniently located and that the rota permits simulation time.

The benefits of a local programme for trainee & trust.....
• Through addressing training needs the trust’s reputation will be enhanced. This will increase popularity during the matching & allocation process, decreasing the likelihood of rota gaps and improve training opportunities globally.

The Handbook.....
• This trainee focused programme aims to incorporate laparoscopic training into the weekly schedule and inspire trainees to access these resources on their own accord.
• A Pilot Laparoscopic Training Programme was introduced at University Hospital Lewisham (UHL) based upon information provided within this guide with encouraging results (Appendix A).

Method

1. **Appoint a Laparoscopic Training Lead**
   This could be Consultant or senior trainee with interest in minimal access surgery and education. Given the transient nature of trainees, continuity of a training programme is improved with College Tutor or Consultant involvement. It is important that the Lead collaborates with the College Tutor, Consultant body and Simulation Centre (if available).

2. **Assess your current level of laparoscopic training** (Appendix B)
   Survey your trainees to capture the quality of current laparoscopic training. This will highlight areas for improvement and offer a benchmark to assess any future implementations. Trusts can adopt all, or some, of the suggestions offered in this handbook depending on the results of the local laparoscopic training survey.

3. **Review the resources available and decide on training exercises to implement**
   At the very least, you need a laparoscopic box trainer. If your department does not have one, liaise with your surgical colleagues and/or Simulation Faculty as they may have equipment they are prepared to share. Failing this, discuss this with your College Tutor or Deanery.

   There are a huge number of box trainers available to purchase with a wide range of price tags. They are also relatively cheap and easy to build with several instruction videos on YouTube.

   The minimum laparoscopic instruments required include:
   - 2 laparoscopic graspers (ideally including 1 dissector)
   - 1 laparoscopic scissors
   - (1 laparoscopic needle holder - for intermediate to advanced tasks)

   The needle holder is usually the most difficult to obtain. Liaise with theatre staff, there may be one no longer suitable for clinical use but adequate for skills training. Alternatively, they can be purchased online. Other equipment depends on the set of exercises you decide to implement.

   See the basic laparoscopic curriculum (Appendix C) for suggested tasks. For the UHL Pilot Training Programme, the Ethicon TASKit Training Exercises #1-9 (Appendix D) were introduced.

   Virtual reality trainers are useful, particularly for teaching the steps required for specific procedures, but they are expensive. You may be able to organise temporary access or loan of such equipment. Try approaching regional training centres, deaneries, and industry representatives.
4. **Design a theoretical curriculum to compliment the skills training**

Use the basic laparoscopic curriculum (Appendix C) to guide you. During the UHL Pilot, theoretical sessions were delivered in the weekly departmental teaching sessions by the Laparoscopic Training Lead, and Consultants with an interest in minimal access surgery. Topics included:

- Laparoscopic Entry
- Pelvic Anatomy
- Theatre Setup
- Application of Energy Modalities in Laparoscopic Surgery
- Surgical Techniques: Laparoscopic Management of Ectopic Pregnancy
- Surgical Techniques: Laparoscopic Ovarian Cystectomy

5. **Introduce protected teaching for laparoscopic training**

Most Trusts across the UK have weekly protected teaching in Obstetrics (i.e. perinatal meeting, CTG teaching, skills & drills). Laparoscopic skills training should also be prioritised, with weekly rota sessions. During the UHL Pilot, one trainee per week was scheduled for a laparoscopic skills session every Wednesday 0800-0900. The Laparoscopic Training Lead supervised the trainee aiming to complete 2 or 3 TASKit Training Exercises per session. This trainee had a late 0900 clinic start. Although only one trainee a week received a protected skills session, it served to familiarise trainees with different training exercises and increase awareness of the accessibility of the box trainer, without impacting on clinical activities. Trainees were also encouraged to utilise the box trainer with colleagues during times of reduced clinical activity or break periods.

6. **Review the level of laparoscopic training at your Trust following introduction of the Basic Laparoscopic Training Programme (Appendix E)**

It is important to assess the impact and quality of the training programme you have delivered. This will help to improve the programme each year. Ensure to update your RIGS Regional Representative on the laparoscopic training available at your Trust. This information will be updated biannually and made available on the BSGE Website (Appendix F).

*Please feel free to contact your BSGE RIGS representative if you require any further assistance in implementing laparoscopic training locally.*
APPENDIX A:

Pilot Study: Delivering Basic Laparoscopic Training at University Hospital Lewisham

Introduction
The 2016 Laparoscopic Survey of RCOG/BSGE trainees revealed that 70% felt laparoscopic training within their deanery did not meet training requirements. This Pilot Study aimed to assess the value of introducing local standardised Basic Laparoscopic Training.

Methods
In October 2016, O&G trainees at University Hospital Lewisham (UHL) completed a questionnaire to assess laparoscopic training. A Basic Laparoscopic Training Programme was then designed and introduced. A Laparoscopic Training lead was appointed to coordinate and deliver the curriculum and training. Theoretical sessions included: Laparoscopic Entry, Pelvic Anatomy, Theatre Setup, Energy Modalities, Techniques for Laparoscopic Management of Ectopic Pregnancy and Ovarian Cystectomy. Trainees were scheduled for practical simulation sessions on a box trainer (Helago HD Laparoscopic Trainer) on a weekly basis with expert supervision. Trainees and Consultants were surveyed at the completion of the programme.

Results
15 trainees completed the programme. 73% pre-course trainees felt training in basic laparoscopy at UHL was ‘below average’ or ‘poor’ and based on the level of laparoscopic training, 47% would recommend UHL to colleagues. 87% post-course trainees felt laparoscopic training was ‘above average’ or ‘excellent’ and based on the level of laparoscopic training, 100% would recommend UHL to colleagues. 93% of trainees and 67% (8/12) Consultants felt the overall level of laparoscopic skill amongst juniors improved following the introduction of the training programme.

Conclusion
Introducing a formalised basic laparoscopic training programme improved trainees’ and Consultants’ perception of laparoscopic training within the Trust. The BSGE and RCOG should support a locally delivered standardised Basic Laparoscopic Training Programme across the UK.
APPENDIX B:

Gynaecological Laparoscopic Training Survey

Please circle your answers

1. What is your current year of training?
   Trust SHO  Trust SPR  ST1  ST2  ST3  ST4  ST5  ST6  ST7

2. How would you rate the laparoscopic training in the standard RCOG training programme?
   Poor  Below Average  Average  Above average  Excellent

3. How would you rate the laparoscopic training at your Trust?
   Poor  Below Average  Average  Above average  Excellent

4. Would you recommend your previous rotation to others based on the level of laparoscopic training?
   Yes  No

5a. Does your unit have a
   Laparoscopic box trainer:  Yes  No  Unsure
   Laparoscopic virtual reality trainer  Yes  No  Unsure

5b. If yes, have you made use of this facility?
   Yes  No

6. Have you received any formal teaching in laparoscopy this year?
   Yes  No

7. Do you have any suggestions of how to improve the delivery of Basic Laparoscopic Training?
APPENDIX C:

Basic Laparoscopy in Gynaecology Curriculum

Defining the theoretical and practical aspects of basic gynaecological laparoscopy for Year 1-2 O&G specialty trainees.

<table>
<thead>
<tr>
<th>Components</th>
<th>Method of delivery &amp; skills training</th>
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</thead>
<tbody>
<tr>
<td><strong>Theoretical: pre-operative component</strong></td>
<td>Online learning:</td>
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<tr>
<td>- Patient selection</td>
<td>o BSGE website <a href="https://bsge.org.uk">https://bsge.org.uk</a></td>
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<tr>
<td>- Counselling and consent</td>
<td>o Video library</td>
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<tr>
<td>- Operation selection</td>
<td>o Facebook page</td>
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<tr>
<td>- Benefits and disadvantages of laparoscopic surgery (LS)</td>
<td>o <a href="http://www.websurg.com">http://www.websurg.com</a></td>
</tr>
<tr>
<td>- Intra-operative complications</td>
<td>o (online university of IRCAD includes video library)</td>
</tr>
<tr>
<td>- Documentation</td>
<td>o <a href="https://stratog.rcog.org.uk/tutorial/gynaecological-emergencies">https://stratog.rcog.org.uk/tutorial/gynaecological-emergencies</a></td>
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<tr>
<td>- Specimen retrieval</td>
<td>Courses:</td>
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<tr>
<td>- Approach to diagnostic laparoscopy</td>
<td>o Local</td>
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<tr>
<td>- Anatomy of the pelvis</td>
<td>o National:</td>
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<tr>
<td>- Endo-nerve complications</td>
<td>o Elements of RCOG basic practical skills</td>
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<tr>
<td>- Physiology of a pneumoperitoneum</td>
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<tr>
<td>- Post-op complications</td>
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<td>- Documentation</td>
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<td>- Specimen retrieval</td>
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<td>- Theory of operations</td>
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<td>- Diagnostic laparoscopy</td>
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<td>- Laparoscopic sterilisation</td>
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<td>- Laparoscopic dye hydrodotation</td>
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<td>- Laparoscopic salpingectomy</td>
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<tr>
<td>- Laparoscopic salpingostomy</td>
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<tr>
<td>- Laparoscopic oophorectomy</td>
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</table>
Laparoscopic ovarian cystectomy

Skills in the curriculum
Entry techniques
Camera navigation
Hand-eye co-ordination
Instrument navigation
Grasping, lifting, transfer
Cutting

• Low fidelity box simulation tasks
  1. Camera navigation task

  2. Touching targets (e.g. stations on a tube map) with alternating hands

  3. Lifting, transfer between hands & placement of triangles on a peg board

  4. Cutting round a circle drawn on gauze

• Virtual-reality simulator tasks

Assessments
• Formative Operative Laparoscopy OSATs on nhseportfolio

Sources of reference:

APPENDIX D:

Trainer Task Cards #1 - #2

Hand-Eye Coordination

**TASK #1**
- Place the open bead container with beads on the peg board in the field of view.
- Place the top of the container 4-5 spaces away from the bottom.
- Using your dominant hand and a dissector, move the beads to the top of the container.
- Repeat the task using your non-dominant hand moving the beads back to the container bottom.
- Repeat task this time hand beads from your dominant hand to your non-dominant hand then place in container.

Hand-Eye Coordination

**TASK #2**
- Place two posts in the peg board base 4-6 spaces apart.
- Place the open bead container with beads on the peg board in the field of view.
- Using your dominant hand and a dissector or grasper, grasp one bead at a time and place over post.
- Repeat the task using your non-dominant hand.

Trainer Task Cards #3a - #3b

Hand-Eye Coordination

**TASK #3A**
- Make 2 track marks approximately 4-2" apart on each side of the rubber band.
- Place pegs in peg board 3-4 spaces wider than unstretched length of rubber band.
- Using graspers or dissectors, stretch the rubber band over both pegs using one hand to hold the left and Db while stretching the right end with the opposite hand.

Hand-Eye Coordination

**TASK #3B**
- With the rubber band still on the pegs, practice placing clips on the rubber band between the track marks.
- Repeat clip on each side of the band separately and together.
Trainer Task Cards #4 - #5

**Traction/Counter Traction**

**TASK #4**
- Place a wrapped Tootsie Roll Midgine in the trainer.
- Using graspers or dissectors, grasp opposite ends of the Tootsie Roll Midgine wrapper with the laparoscopic instruments.
- Pull in opposite direction until the wrapper unwinds.

**Traction/Counter Traction**

**TASK #5**
- Place a 3” to 4” piece of Twizzler Fruit and Licorice candy in trainer.
- Staple a peg board clip.
- Using graspers or dissectors, remove one section at a time until all sections have been removed.

Trainer Task Cards #8 - #9

**Plane Dissection**

**TASK #8**
- Place the pointed end in the peg board in the field of vision.
- Place a large grape on the pointed end as shown.
- Using laparoscopic scissors and a dissector, incise and peel the skin from the grape.
- Try to keep the skin in one piece as much as possible.
- If the grape has a seed, dissect the seed from the grape after peeling.

**Plane Dissection**

**TASK #9**
- Place the pointed end in the peg board in the field of vision.
- Place a Brussels sprout on the pointed end as shown.
- Using laparoscopic dissector or grasper, peel the leaves of the Brussels sprout one at a time.
APPENDIX E:

Gynaecological Laparoscopic Training Follow Up Survey

Please circle your answers

1. What is your current year of training?
   - ST1  ST2  ST3  ST4  ST5  ST6  ST7
   - Trust SHO  Trust SPR  SAS  Cons

2. How would you rate the basic laparoscopic training at your Trust?
   - Poor  Below Average  Average  Above average  Excellent

3. Would you recommend your current hospital to others based on the level of
   laparoscopic training?
   - Yes  No

4a. Do trainees at your trust have access to a
   Laparoscopic box trainer:
   - Yes  No  Unsure
   Laparoscopic virtual reality trainer
   - Yes  No  Unsure

4b. If yes, have you made use of this facility?
   - Yes  No

4c. If yes, are trainees encouraged to use this facility?
   - Yes  No

5. As part of the Basic Laparoscopy curriculum we have covered: Laparoscopic entry;
   Pelvic Anatomy; Theatre Setup; Application of energy modalities in laparoscopic surgery;
   surgical technique for laparoscopic management of ectopic pregnancy & ovarian
   cystectomy.
   Are there any other topics you feel should be included?

6. Do you feel that the introduction of a Basic Laparoscopic Curriculum has improved
   your skills or those of your juniors?
   - Yes  No
7. Any suggestions on how to improve the delivery of Basic Laparoscopic Training?
### APPENDIX F:

**Survey of Laparoscopic Simulation Training in Gynaecology**

<table>
<thead>
<tr>
<th>DEANERY/REGION:</th>
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<tbody>
<tr>
<td>Region-wide courses or study days</td>
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**Regional contacts (please include contact details if appropriate)**

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