

# 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<sup>1</sup>.
- 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<sup>1</sup> 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).

<sup>1</sup> Ghosh D. Laparoscopic Survey Summary 2016. BSGE The Scope. Issue 5:19-20 (<http://bsge.org.uk/wp-content/uploads/2016/04/The-Scope-issue-5-WEB-1.pdf>)

## 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.

Components	Method of delivery & skills training
<p><b>Theoretical: pre-operative component</b></p> <p>Patient selection</p> <p>Counselling and consent</p> <p>Operation selection</p> <p>Benefits and disadvantages of laparoscopic surgery (LS)</p>	<p>Online learning:</p> <ul style="list-style-type: none"> <li>• BSGE website <a href="https://bsge.org.uk">https://bsge.org.uk</a> <ul style="list-style-type: none"> <li>○ Video library</li> <li>○ Facebook page</li> </ul> </li> <li>• <a href="http://www.websurg.com">http://www.websurg.com</a> <ul style="list-style-type: none"> <li>○ (<a href="#">online university of IRCAD includes video library</a>)</li> </ul> </li> <li>• <a href="https://stratog.rcog.org.uk/tutorial/elearning-and-teaching-for-basic-laparoscopic-surgery">https://stratog.rcog.org.uk/tutorial/elearning-and-teaching-for-basic-laparoscopic-surgery</a></li> <li>• <a href="https://stratog.rcog.org.uk/tutorial/ectopic-pregnancy/introduction-to-ectopic-pregnancy-5469">https://stratog.rcog.org.uk/tutorial/ectopic-pregnancy/introduction-to-ectopic-pregnancy-5469</a></li> <li>• <a href="https://stratog.rcog.org.uk/tutorial/gynaecological-emergencies">https://stratog.rcog.org.uk/tutorial/gynaecological-emergencies</a></li> </ul> <p>Courses:</p> <ul style="list-style-type: none"> <li>• Local</li> <li>• National: <ul style="list-style-type: none"> <li>○ Elements of RCOG basic practical skills</li> </ul> </li> </ul>
<p><b>Theoretical: theatre component</b></p> <p>LS equipment</p> <p>Use of diathermy / electrosurgery</p> <p>Theatre set up in LS</p> <p>Patient positioning</p> <p>Theatre team working in LS</p> <p>Safety checklist in LS</p>	
<p><b>Theoretical: operative component</b></p> <p>Port placement in LS</p> <p>Ergonomics</p> <p>Approach to diagnostic laparoscopy</p> <p>Anatomy of the pelvis</p> <p>Intra-operative complications</p> <p>Physiology of a pneumoperitoneum</p> <p>Post-op complications</p> <p>Documentation</p> <p>Specimen retrieval</p>	
<p><b>Theory of operations</b></p> <p>Diagnostic laparoscopy</p> <p>Laparoscopic sterilisation</p> <p>Laparoscopic dye hydrotubation</p> <p>Laparoscopic salpingectomy</p> <p>Laparoscopic salpingostomy</p> <p>Laparoscopic oophorectomy</p>	

Laparoscopic ovarian cystectomy	
<p><b>Skills in the curriculum</b></p> <p>Entry techniques</p> <p>Camera navigation</p> <p>Hand-eye co-ordination</p> <p>Instrument navigation</p> <p>Grasping, lifting, transfer</p> <p>Cutting</p>	<ul style="list-style-type: none"> <li>• Low fidelity box simulation tasks</li> </ul> <ol style="list-style-type: none"> <li>1. Camera navigation task </li> <li>2. Touching targets (e.g. stations on a tube map) with alternating hands </li> <li>3. Lifting, transfer between hands &amp; placement of triangles on a peg board </li> <li>4. Cutting round a circle drawn on gauze </li> </ol> <ul style="list-style-type: none"> <li>• Virtual-reality simulator tasks</li> </ul>
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Formative Operative Laparoscopy OSATs on nhseportfolio</li> </ul>

Sources of reference:

1. Burden C, Fox R Lenguerrand E, Hinshaw K , Draycott T, James M. Curriculum development for basic gynaecological laparoscopy with comparison of expert trainee opinions; prospective cross-sectional observational study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2014; 180 :1–7
2. Shore EM, Lefebvre GG, Husslein H, Bierrum F, Sorensen JL, Grantcharov TP. Designing a Standardized Laparoscopy Curriculum for Gynecology Residents: A Delphi Approach. [J Grad Med Educ](#). 2015 Jun; 7(2): 197–202.



APPENDIX D:

Trainer Task Cards #1 - #2

**Hand-Eye Coordination  
TASK #1**

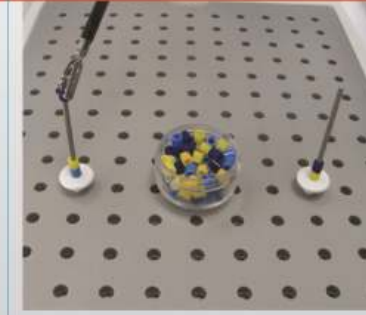
- Place the open bead container with beads on the peg board in the field of view.
- Place the top of the container 4-5 spaces away from the bottom.
- Using your dominant hand and a dissector, move the beads to the top of the container.
- Repeat the task using your non-dominant hand moving the beads back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



The image shows a hand-eye coordination task setup on a grey pegboard. A clear plastic container filled with blue and yellow beads is placed on the board. A dissector is positioned to move beads from the bottom of the container towards the top. A second empty container is placed to the right.

**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.

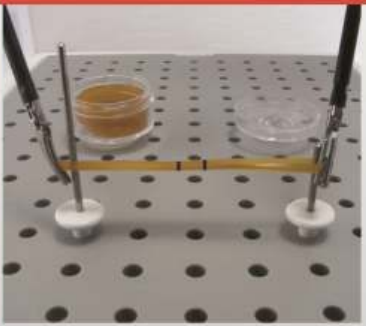


The image shows a hand-eye coordination task setup on a grey pegboard. Two white posts are inserted into the board, spaced apart. A clear plastic container with blue and yellow beads is in the center. A dissector is positioned to pick up a bead from the container and place it on top of one of the posts.

Trainer Task Cards #3a - #3b

**Hand-Eye Coordination  
TASK #3A**

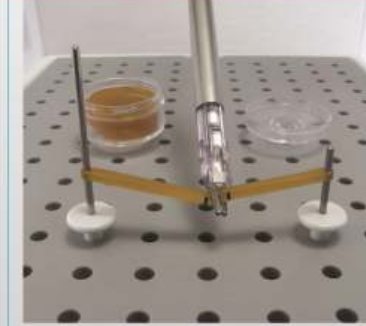
- Make 2 black marks approximately 1/2" apart on each side of the rubber band.
- Place posts in peg board 3-4 spaces wider than unstretched length of rubber band.
- Using graspers or dissectors, stretch the rubber band over both posts using one hand to hold the left end while stretching the right end with the opposite hand.



The image shows a hand-eye coordination task setup on a grey pegboard. Two white posts are inserted into the board. A yellow rubber band is stretched across the two posts. Two black marks are visible on the rubber band, one on each side of the posts. Two graspers are positioned to hold the ends of the rubber band.

**Hand-Eye Coordination  
TASK #3B**

- With the rubber band still on the posts, practice placing clips on the rubber band between the black marks.
- Place clips on each side of the band separately and together.



The image shows a hand-eye coordination task setup on a grey pegboard. Two white posts are inserted into the board. A yellow rubber band is stretched across the two posts. Two black marks are visible on the rubber band. A dissector is positioned to place a clip on the rubber band between the two black marks.

Trainer Task Cards #4 - #5


**Traction/Counter Traction**  
**TASK #4**

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



**Traction/Counter Traction**  
**TASK #5**

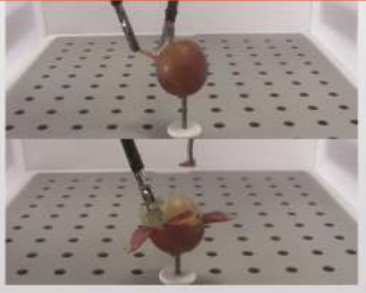
- Place a 3" to 4" piece of Twizzler Pull and Peel candy in trainer.
- Stabilize with peg board clip.
- Using graspers or dissectors, remove one section at a time until all sections have been removed.



Trainer Task Cards #8 - #9


**Plane Dissection**  
**TASK #8**

- Place the pointed post in the peg board in the field of vision.
- Place a large grape on the pointed post 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 post in the peg board in the field of vision.
- Place a Brussels sprout on the pointed post 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**

<b>DEANERY/REGION:</b>	
<b>Region-wide courses or study days</b>	
<b>Regional contacts</b> (please include contact details if appropriate) I consent to my details being listed on the BSGE website: <input type="checkbox"/>	

<b>HOSPITAL:</b>	
<b>Local courses or study days</b> (please complete <u>one form for each hospital</u> within the region)	
<b>Local contacts</b> (please include contact details if appropriate)	
I consent to my details being listed on the BSGE website: <input type="checkbox"/>	
<b>Locally available training equipment</b> including location and access details if appropriate	

<b>HOSPITAL:</b>	
<b>Local courses or study days</b> (please complete <u>one form for each hospital</u> within the region)	
<b>Local contacts</b> (please include contact details if appropriate)	
I consent to my details being listed on the BSGE website: <input type="checkbox"/>	
<b>Locally available training equipment</b> including location and access details if appropriate	

<b>Locally available training equipment</b> including location and access details if appropriate	
<b>Local contacts</b> (please include contact details if appropriate)	
I consent to my details being listed on the BSGE website: <input type="checkbox"/>	
<b>Locally available training equipment</b> including location and access details if appropriate	