

# A comparative assessment of appendicectomy training models in simulation setting

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## Introduction

- The covid-19 pandemic has limited trainees' exposure to laparoscopic procedures due to the risk of pneumoperitoneum as an aerosol-generating procedure.
- In order to maintain and develop laparoscopic skills we looked to commercially available models for laparoscopic appendicectomy.
- We also developed an in-house wet-lab model which allowed trainees to practise safe and effective use of electrosurgery.

## Aim

The aim of the study was to evaluate the currently available models in the UK for simulated appendicectomy training. We considered the following characteristics:

1. ability to allow practice of essential procedural steps;
2. cost-effectiveness and ease of procurement;
3. trainee satisfaction with use of model.

## Method

- Through literature and internet searches we identified three commercial, two wet lab and one innate model (glove appendix).
- We tested the commercial models alongside an in-house wet lab model in a simulated training session with a group of ten trainees and two consultants at the inaugural Wigan LapPass® and Laparoscopic Skills Course.



Fig 1. Inovus Medical® appendix



Fig 2. iSurgicals® caecum and appendix refills



Fig 3. eoSurgical® appendix/salpinx

## Results

- The three commercially available models were ranked in order of preference according to each of six separate characteristics:

	Model ranking score (1-3 with 3 highest score)		
	Inovus Medical® appendix (fig 1)	iSurgicals® caecum and appendix refills (fig 2)	eoSurgical® appendix/salpinx (fig 3)
Resemblance to surgical anatomy	2	3	1
Meso-appendix dissection and clipping	2	3	Not suitable
Suitability for dissection with energy device	Not suitable	Not suitable	Not suitable
Endoloop placement	2	3	1
Cost-effectiveness	2	3	1
Trainee satisfaction	2	3	1

## Conclusion

- The iSurgicals was the preferred model in our training and the most cost-effective through design (replaceable appendix and reusable caecum).
- None of the commercially available models allowed the effective teaching of dissection of mesoappendix with energy device and this is a major drawback in simulated appendicectomy using the commercial models.

## Key statements

- Convenient simulated teaching of all technical steps of appendicectomy remains challenging due to inbuilt limitations of available models.
- Use of both a commercial model and our in-house model (fig 4) for mesoappendix dissection has increased trainee satisfaction by allowing all technical steps of the procedure to be performed.

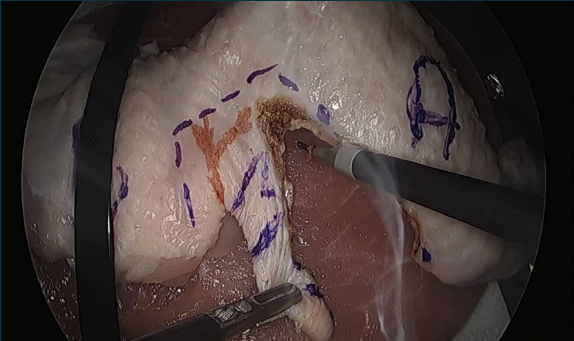


Fig 4. mesoappendix dissection with monopolar hook diathermy using our chicken wing model.