- EPAs are an intuitive and relatable way to describe the core learning outcomes for the important early milestones in our programme
- Joe started learning about EPAs for curriculum design in 2014 and then, during a year out as an education fellow in 2017, together with Oliver and colleagues in south east London, we ran our first pilot trial of an EPA based curriculum for the novice period.
- Having evaluated and improved the curriculum, we teamed up with the College to run a second, larger trial and then to help with introducing EPAs into the 2021 curriculum.

Session outline

- Introducing EPAs
- EPAs for the IAC: our experience
- The IAC and IACOA for 2021

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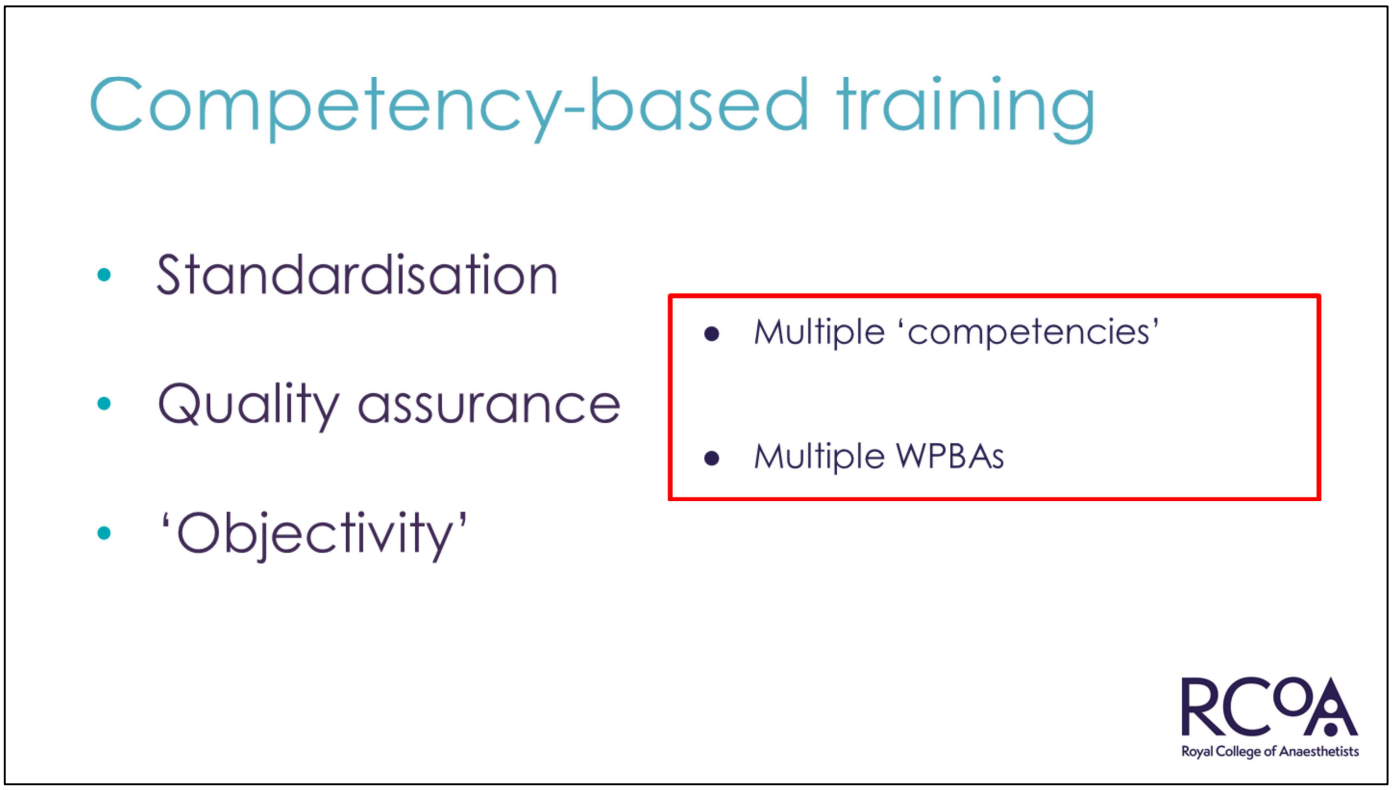
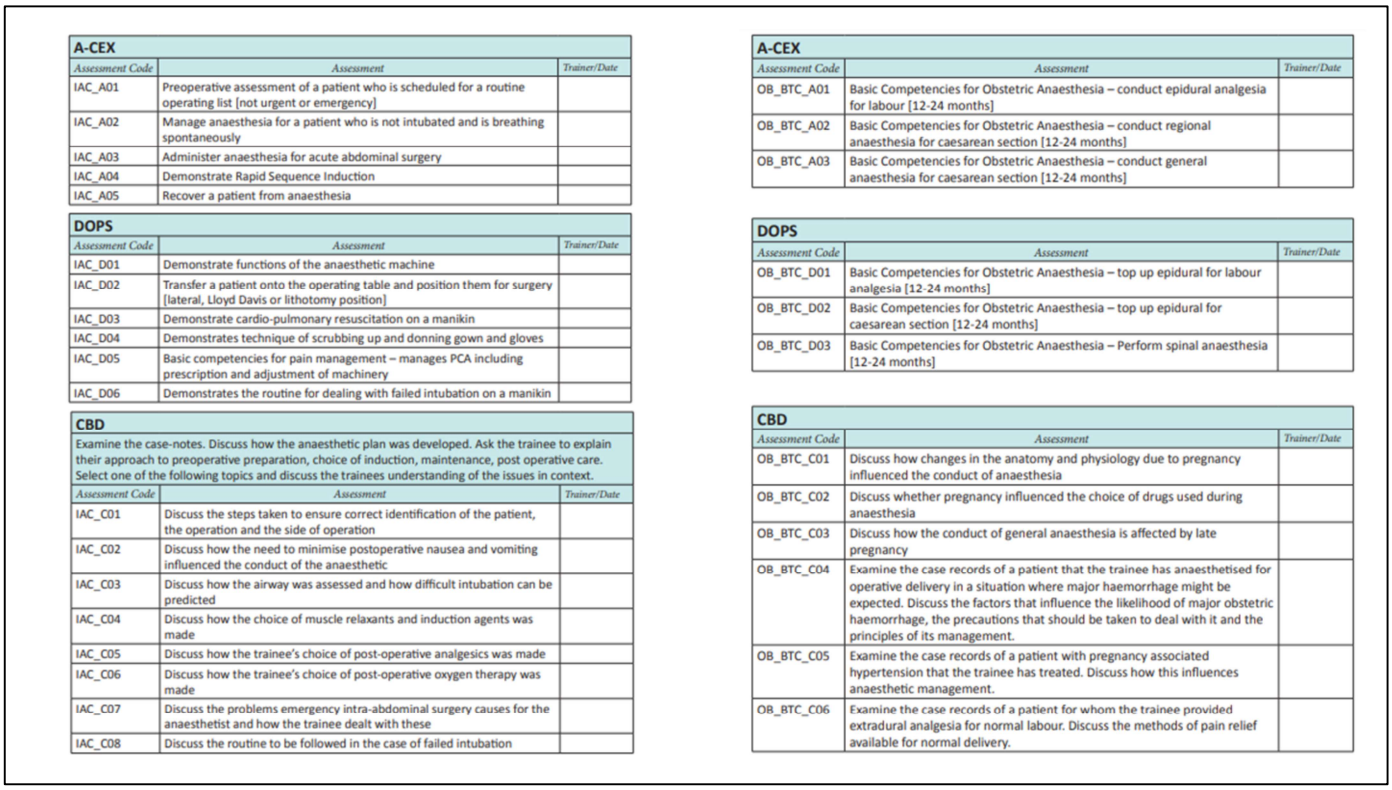
The plan for this workshop, is:

- to first of all introduce the concept of EPAs for curriculum design
- share with you some of the results from the trial
- And then outline the shape of the IAC and IACOA as they will appear in the new curriculum.



- The context for all of this is the competency-based medical education movement
- The aim of a competency based approach is to produce a trained, professional workforce, that's able to meet the high expectations of society and our regulatory bodies
- It seeks to ensure standardisation in the training programme and provide quality assurance
- This was all underpinned by the search for rigorous and objective assessment methods
- The resulting curricula were based on exhaustive lists of 'competencies'
- And had a strong emphasis on WPBA to assess that these competencies had been achieved.



A-CEX

Assessment Code	Assessment	Trainer/Date
IAC_A01	Preoperative assessment of a patient who is scheduled for a routine operating list [not urgent or emergency]	
IAC_A02	Manage anaesthesia for a patient who is not intubated and is breathing spontaneously	
IAC_A03	Administer anaesthesia for acute abdominal surgery	
IAC_A04	Demonstrate Rapid Sequence Induction	
IAC_A05	Recover a patient from anaesthesia	

DOPS

Assessment Code	Assessment	Trainer/Date
IAC_D01	Demonstrate functions of the anaesthetic machine	
IAC_D02	Transfer a patient onto the operating table and position them for surgery [lateral, Lloyd Davis or lithotomy position]	
IAC_D03	Demonstrate cardio-pulmonary resuscitation on a manikin	
IAC_D04	Demonstrates technique of scrubbing up and donning gown and gloves	
IAC_D05	Basic competencies for pain management – manages PCA including prescription and adjustment of machinery	
IAC_D06	Demonstrates the routine for dealing with failed intubation on a manikin	

CBD

Examine the case-notes. Discuss how the anaesthetic plan was developed. Ask the trainee to explain their approach to preoperative preparation, choice of induction, maintenance, post operative care. Select one of the following topics and discuss the trainees understanding of the issues in context.

Assessment Code	Assessment	Trainer/Date
IAC_C01	Discuss the steps taken to ensure correct identification of the patient, the operation and the side of operation	
IAC_C02	Discuss how the need to minimise postoperative nausea and vomiting influenced the conduct of the anaesthetic	
IAC_C03	Discuss how the airway was assessed and how difficult intubation can be predicted	
IAC_C04	Discuss how the choice of muscle relaxants and induction agents was made	
IAC_C05	Discuss how the trainee's choice of post-operative analgesics was made	
IAC_C06	Discuss how the trainee's choice of post-operative oxygen therapy was made	
IAC_C07	Discuss the problems emergency intra-abdominal surgery causes for the anaesthetist and how the trainee dealt with these	
IAC_C08	Discuss the routine to be followed in the case of failed intubation	

A-CEX

Assessment Code	Assessment	Trainer/Date
OB_BTC_A01	Basic Competencies for Obstetric Anaesthesia – conduct epidural analgesia for labour [12-24 months]	
OB_BTC_A02	Basic Competencies for Obstetric Anaesthesia – conduct regional anaesthesia for caesarean section [12-24 months]	
OB_BTC_A03	Basic Competencies for Obstetric Anaesthesia – conduct general anaesthesia for caesarean section [12-24 months]	

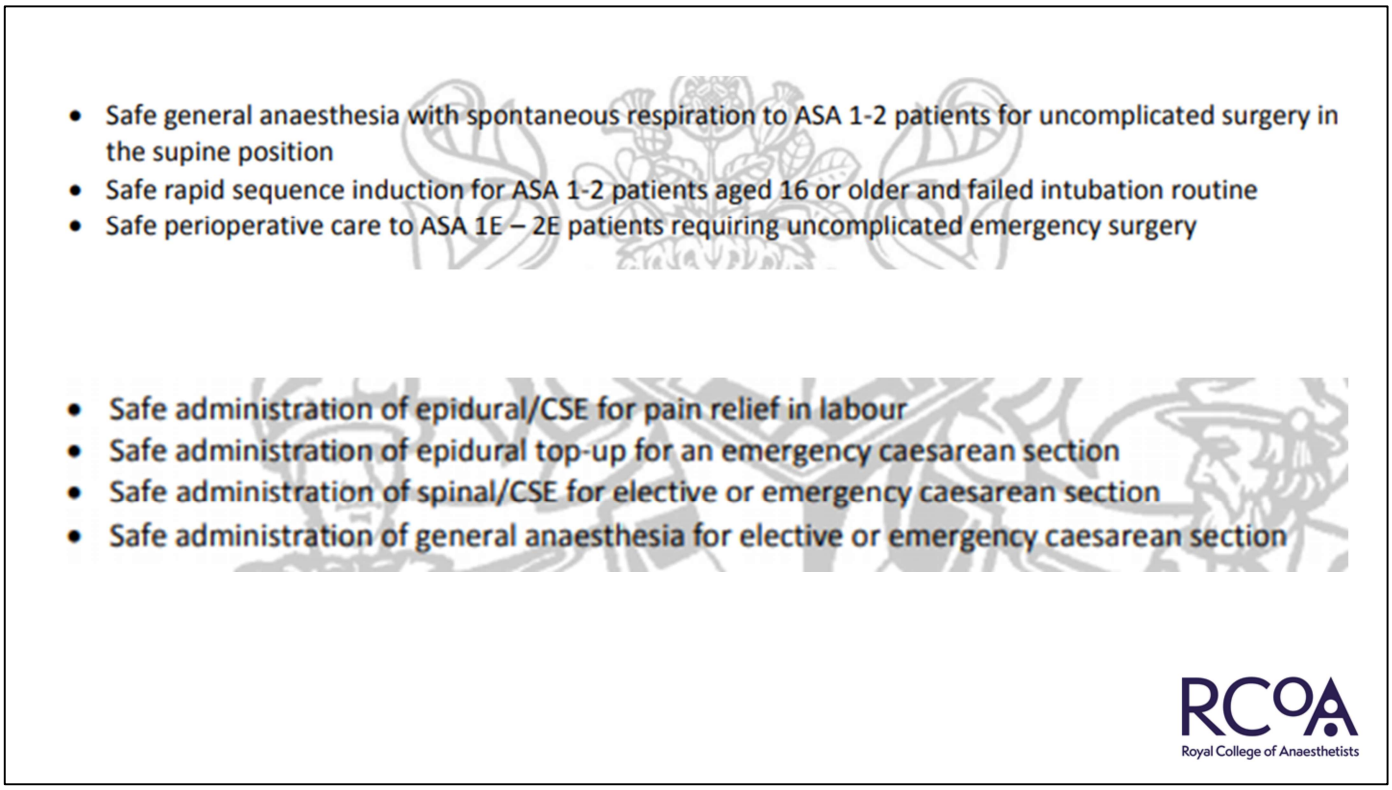
DOPS

Assessment Code	Assessment	Trainer/Date
OB_BTC_D01	Basic Competencies for Obstetric Anaesthesia – top up epidural for labour analgesia [12-24 months]	
OB_BTC_D02	Basic Competencies for Obstetric Anaesthesia – top up epidural for caesarean section [12-24 months]	
OB_BTC_D03	Basic Competencies for Obstetric Anaesthesia – Perform spinal anaesthesia [12-24 months]	

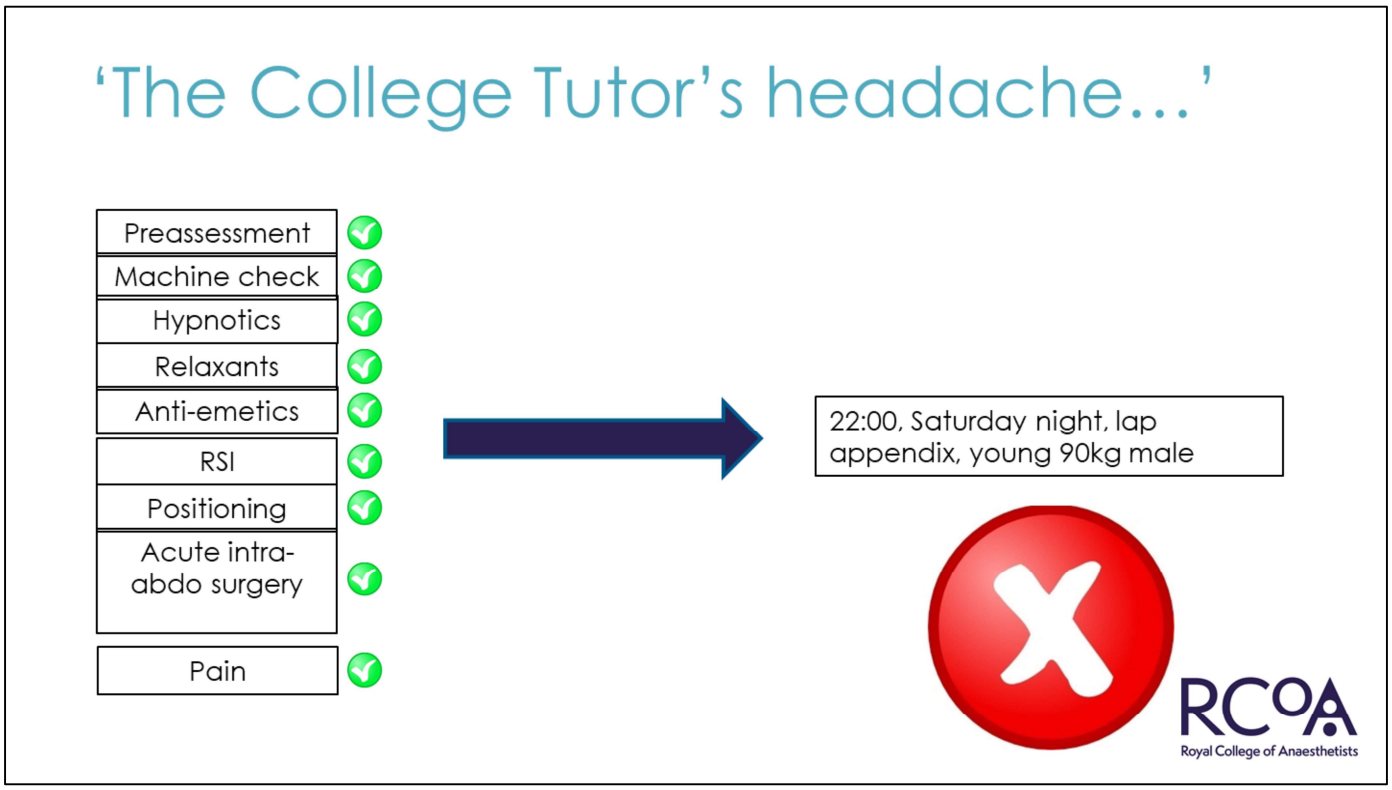
CBD

Assessment Code	Assessment	Trainer/Date
OB_BTC_C01	Discuss how changes in the anatomy and physiology due to pregnancy influenced the conduct of anaesthesia	
OB_BTC_C02	Discuss whether pregnancy influenced the choice of drugs used during anaesthesia	
OB_BTC_C03	Discuss how the conduct of general anaesthesia is affected by late pregnancy	
OB_BTC_C04	Examine the case records of a patient that the trainee has anaesthetised for operative delivery in a situation where major haemorrhage might be expected. Discuss the factors that influence the likelihood of major obstetric haemorrhage, the precautions that should be taken to deal with it and the principles of its management.	
OB_BTC_C05	Examine the case records of a patient with pregnancy associated hypertension that the trainee has treated. Discuss how this influences anaesthetic management.	
OB_BTC_C06	Examine the case records of a patient for whom the trainee provided extradural analgesia for normal labour. Discuss the methods of pain relief available for normal delivery.	

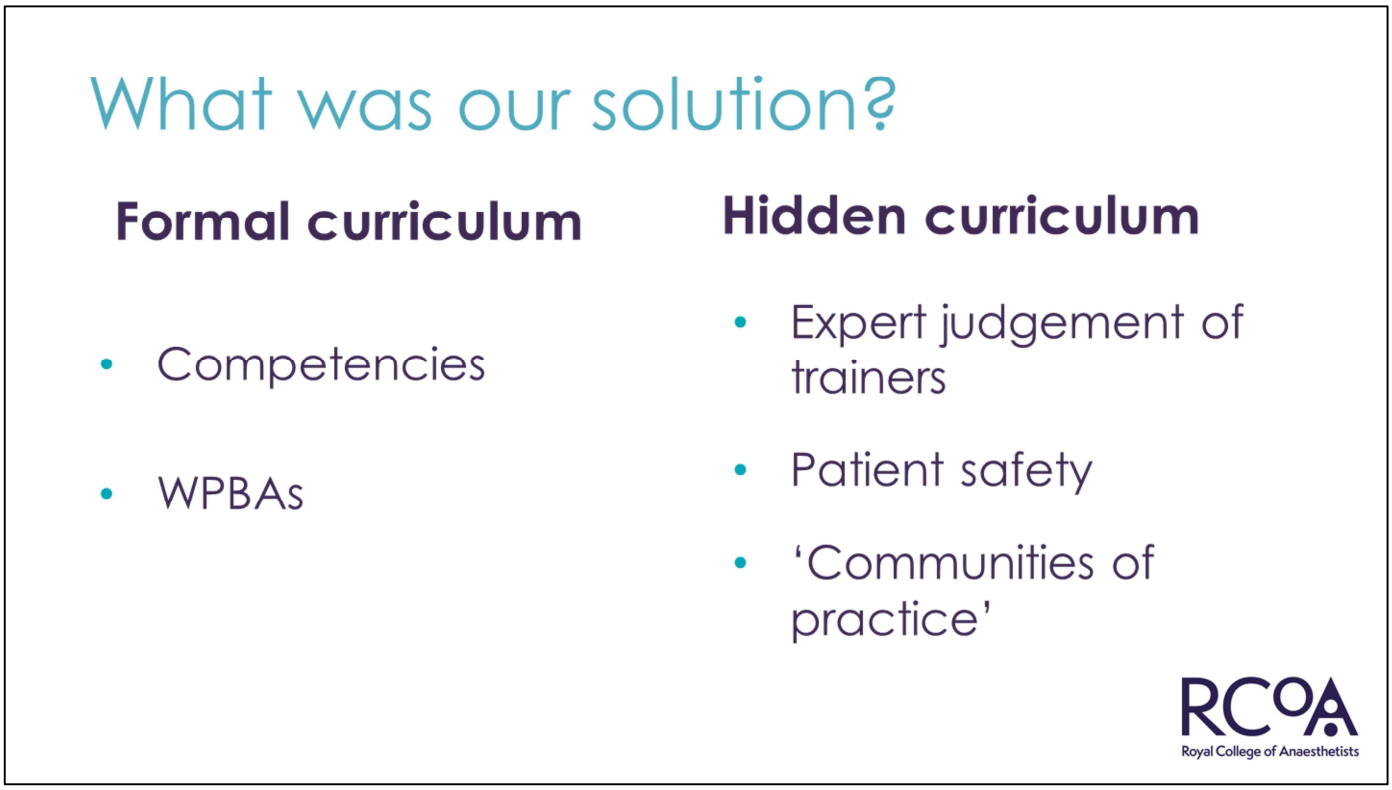
- You'll be familiar with the assessment requirements for the IAC and IACOA in the 2010 curriculum
- Both milestones were assessed using a set of pre-selected WBAs
- Completion of these assessments was intended to ensure that learners had reached the standard required to progress and to practice with less supervision.



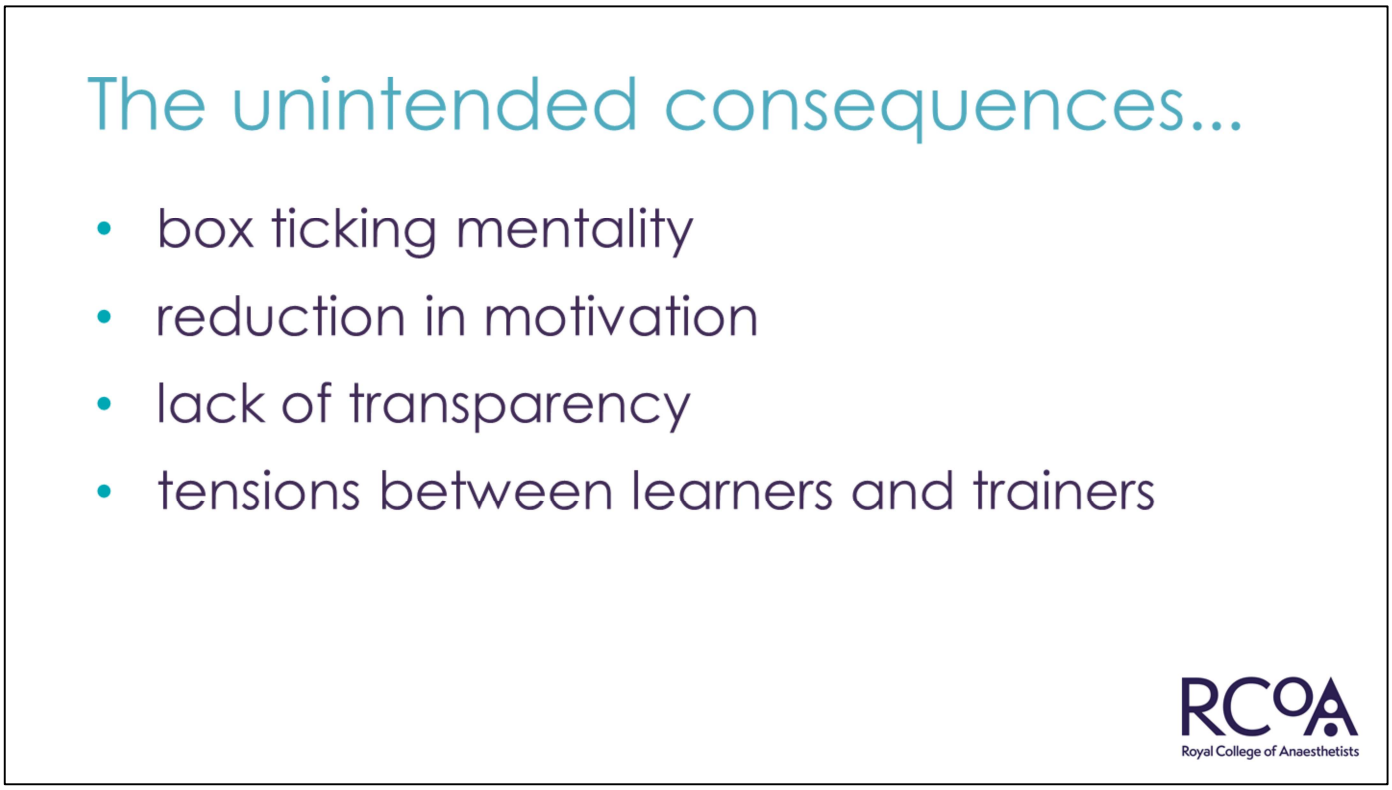
- What was perhaps less prominent in the 2010 curriculum were the intended learning outcomes, which are shown here, with the IAC at the top and the IACOA underneath
- What was found, is that the headline grabbing bit was the assessments, certainly in the minds of the learners
- Whether intended or otherwise, the message being sent to learners was that ‘if you complete these assessments, that **means** we think you’re competent and ready to go.



- But what we learned over the last 10 years is that these lists of individual assessments have very limited value in the assessment of competence in the workplace
- And that's been true across the spectrum of postgraduate training
- Probably the biggest reason is that 19 snap-shots of learner behaviour can't hope to capture adequate evidence of competence in all the varied contexts of clinical practice
- Much as, as scientists, we are naturally drawn to assessments which purport to be objective,
- **What was learned is that you can't replace the judgement of expert supervisors with an 'objective' assessment when clinical competence is so very context dependent.**



- There developed an accepted understanding amongst trainers, that the assessments alone are not enough to ensure our trainees were safe
- So there needed to be another process, sometimes called the 'hidden curriculum', which underpinned the way that we supervise our trainees
- And that hidden process is that we use our judgement. On a moment-by-moment basis, often without conscious awareness, we compare our trainees against the cultural norms of our 'community of practice'; this is the term that's used to describe a professional group that has rules which govern how the people within that group are expected to think and to act
- As members of this group, our human judgement is incredibly good at detecting deviation from these norms - it sticks out to us
- When we're welcoming in new members, as we do during the IAC or IACOA, as well as learning the clinical stuff, we expect learners to cotton on to all of the rules of our group
- These processes are powerful, ingrained and tacit - in that it's not something that we're used to un-picking and explaining
- It's also very difficult, probably impossible, to replicate that element of the process through lists of WBAs alone.



- The result of this separation between the formal curriculum and the hidden curriculum was that the processes that were used in the 2010 curriculum, WBA in particular, became devalued
- It encouraged a box-ticking mentality, where doing the minimum required to pass became the norm
- This reduced learner's motivation to actively engage; and probably the affected trainer's motivation too
- There was also fundamentally a lack of transparency - the rules of the game weren't clear
- This became a problem, especially where learners weren't judged as ready to progress despite having completed their assessments and in turn, could lead to tension between learners and their trainers.

Adv in Health Sci Educ (2016) 21:455–473
DOI 10.1007/s10459-015-9614-0

REVIEW

Workplace-based assessment: a review of user perceptions and strategies to address the identified shortcomings

Jonathan Massie[1] · Jason M. Ali[2]

- Review of 935 papers between 2005 and 2015 [1]
- Trainees consistently report WPBAs as a 'hoop-jumping exercise'
- 'Assessments' not felt to support learning

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- We weren't alone in experiencing these issues
- This paper looked at over 900 articles and found that across the board, the way in which we had implemented competency-based training and in particular the way we've been using WBA was having the same detrimental effects on engagement with workplace learning activities.

Entrustable Professional Activities

'A clinical activity which a trainee can be trusted to complete with indirect supervision once they have demonstrated the necessary competence'

(Olle ten Cate, 2005)

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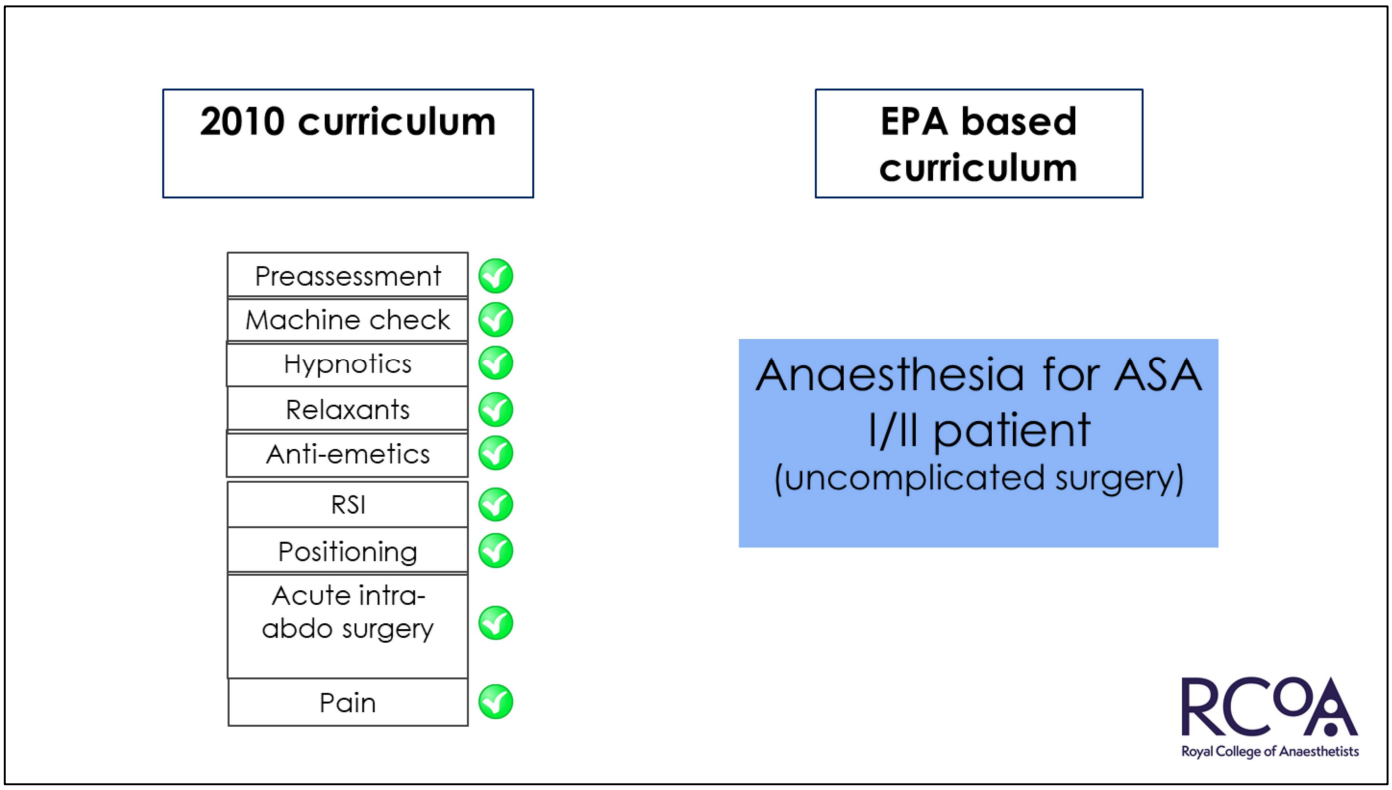
- We found that educators the world over were wrestling with these same issues in trying to implement competency-based training and make it a better fit for the workplace
- Entrustable Professional Activities were proposed as a way to describe clinical work.



- Instead of breaking practice into micro-units for individual assessment, the first thing that an EPA curriculum does is to describe the work in terms of units of practice that we all recognise
- When you take this further, a curriculum built using EPAs as building blocks, sets out to define all of the core tasks that together make up the activities of a profession.

Capturing expert judgement

1	Direct supervisor involvement, physically present in theatre throughout
2A	Supervisor in theatre suite, available to guide aspects of activity through monitoring at regular intervals
2B	Supervisor within hospital for queries, able to provide prompt direction/assistance
3	Supervisor on call from home for queries able to provide directions via phone or non-immediate attendance
4	Should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols

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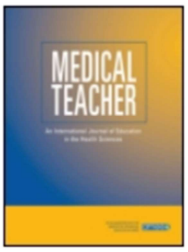
- The other important feature of EPA curriculum design, is the use of a supervision scale
- Learners start off requiring direct, proactive supervision and guidance for each of these EPAs
- And gradually they'll progress towards more independent practice
- The judgements we make about supervision are a reflection of those implicit, 'sense-checking' processes that feature in that hidden curriculum which were introduced earlier
- Using supervision level judgements is one way to tease out and give voice to the expert judgement of trainers, to formalise the decisions we take every day in the workplace - 'do I need to be in the room or can I go and have a coffee?'



Curriculum development for the workplace using Entrustable Professional Activities (EPAs): AMEE Guide No. 99

Olle ten Cate, Huiju Carrie Chen, Reinier G. Hoff, Harm Peters, Harold Bok & Marieke van der Schaaf

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- As mentioned at the beginning, back In 2017 colleagues in South East London followed this guide to create a curriculum for the novice period using EPAs.

Developing EPAs for the IAC

What do we expect a CT1 to be able to do on call?

'Job analysis with an educational purpose in mind'

[3]

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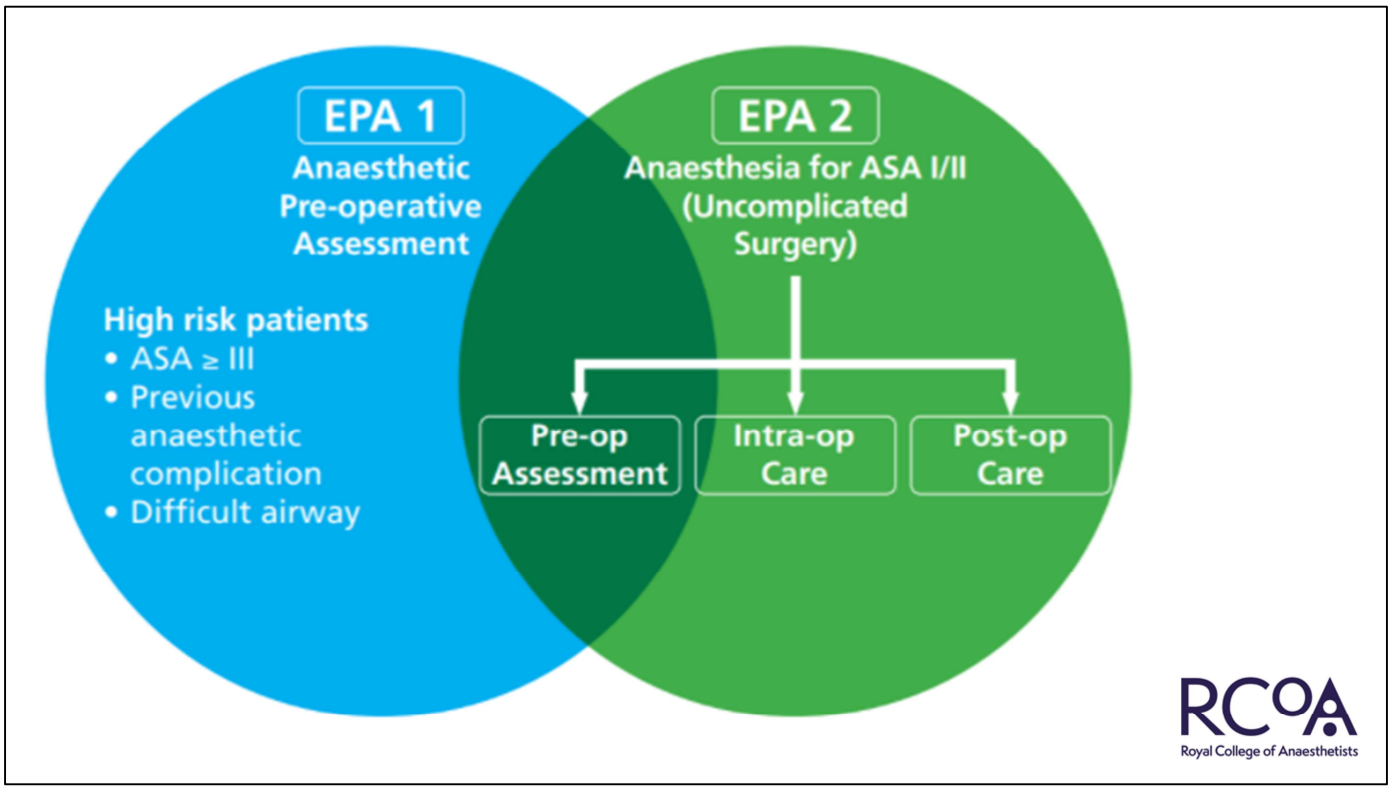
- What that entailed was what's been called 'job analysis with an educational purpose'
- What are the core tasks we expect a CT1 trainee to be able to perform in order to join the on-call rota?



- Here's what was developed
- On the right, EPA 2 is general anaesthesia for an uncomplicated operation in a low-risk patient
- EPA 1, anaesthetic pre-operative assessment, features as you can see in the pre-operative phase of EPA 2. But novice trainees are also often sent to see more complex or high-risk patients
- So for EPA 1, trainees needed to demonstrate a basic understanding of anaesthetic risk, that enables them to flag up difficult cases to their seniors and also demonstrates their understanding of their own scope of practice.

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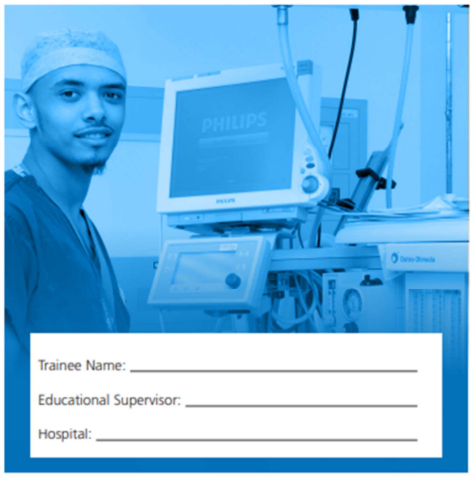
Entrustable Professional Activities for the Anaesthetic Novice Period



2019 pilot project

- 7 sites (South east and York)
- 29 trainees
- 149 consultants

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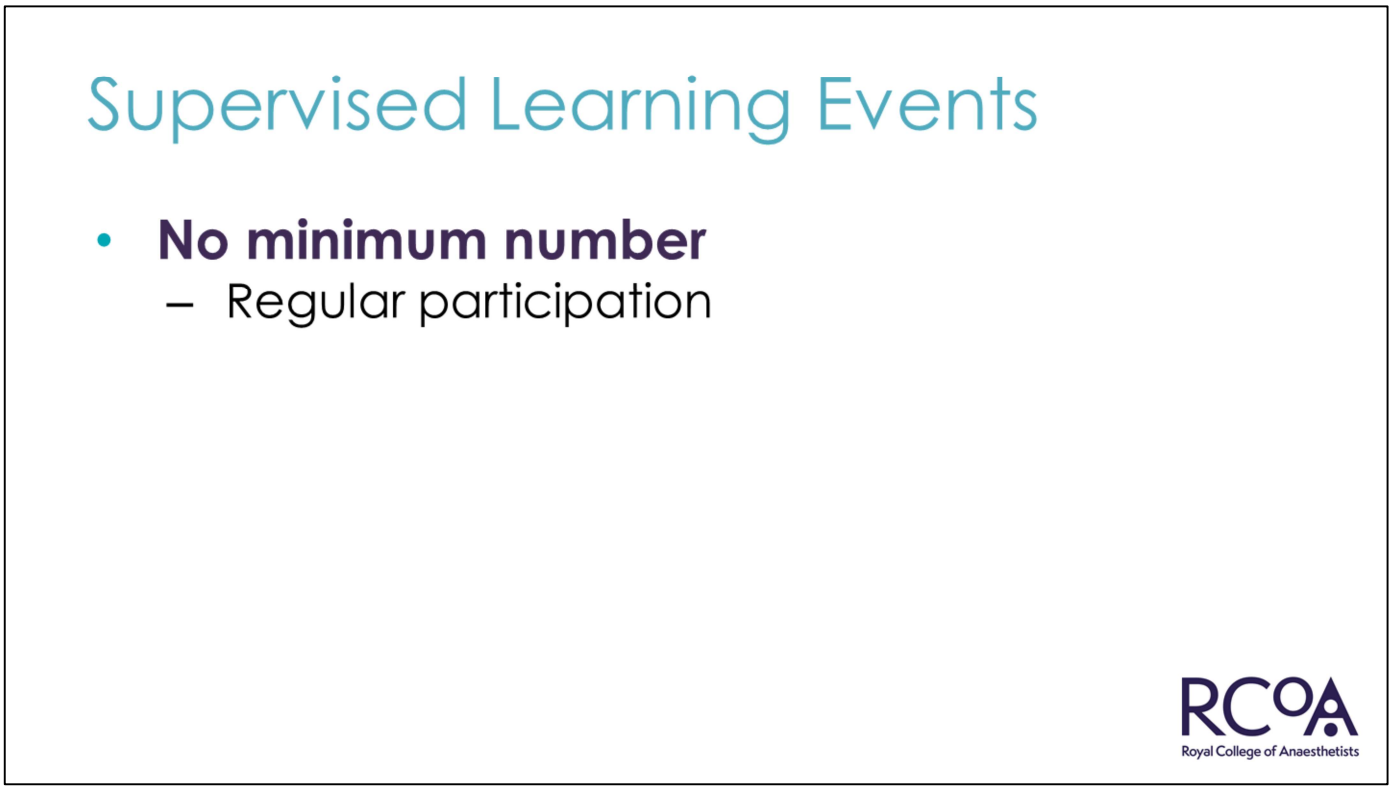
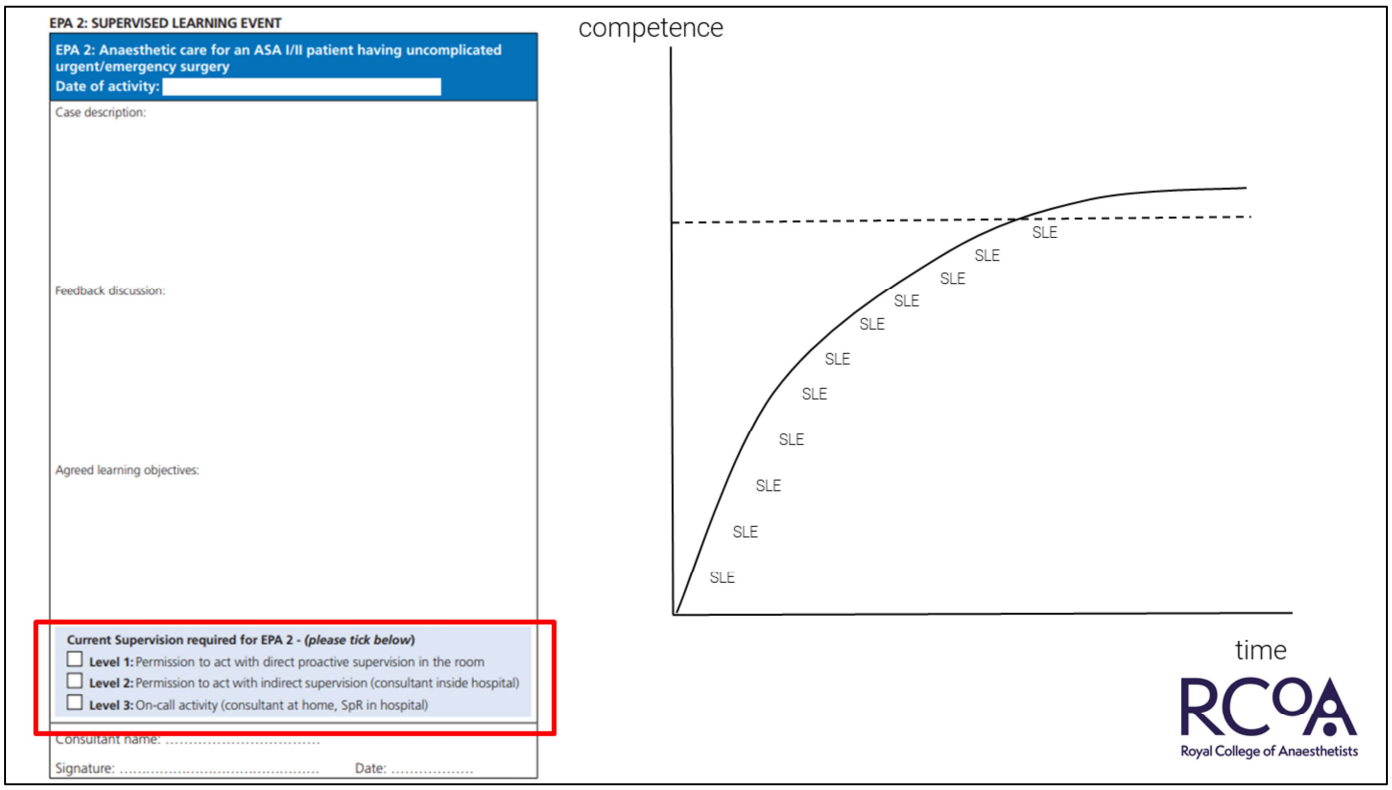
- There have been two pilot studies looking at how these ideas work in practice; the most recent one ran in August 2019
- A workbook was created for use in the trials which contained much more detailed descriptions of each EPA - outlining the expected level of knowledge, skills, attitudes, and behaviours that were required to progress through the programme
- A range of learning activities were also included.

- Trainees completed Supervised Learning Events (SLEs), which were similar to the WBA tools we're familiar with, but with some important differences that we'll come to in a moment
- We also incorporated a simulation component to address rare events, particularly around airway management including failed intubation and can't intubate, can't oxygentate
- We dovetailed with the existing novice courses running in the trial regions where core knowledge elements were covered.



- One of the things trial encouraged was greater trainee engagement with formative assessment
- The term ‘supervised learning event’ was adopted to help move away from the idea that trainees were being constantly assessed
- There was no set minimum number of SLEs that had to be completed
- A very clear message was sent through the workbook, through an instructional video that we produced, and in our faculty development course that prepared departments to take part; that the point of the SLEs was to capture regular, low-stakes episodes of feedback to improve performance.



- The workbook contained a lot of these blank SLE templates, that were designed to record a brief summary of the feedback conversations that happen every day in the workplace.
- The learners were encouraged to use these tools flexibly to capture the learning process as they worked towards achieving competence in each EPA
- The trainers could also use the supervision scale at the bottom to give some global feedback on where the learners were at and this could also stimulate a conversation about what learners needed to do to progress to the next level

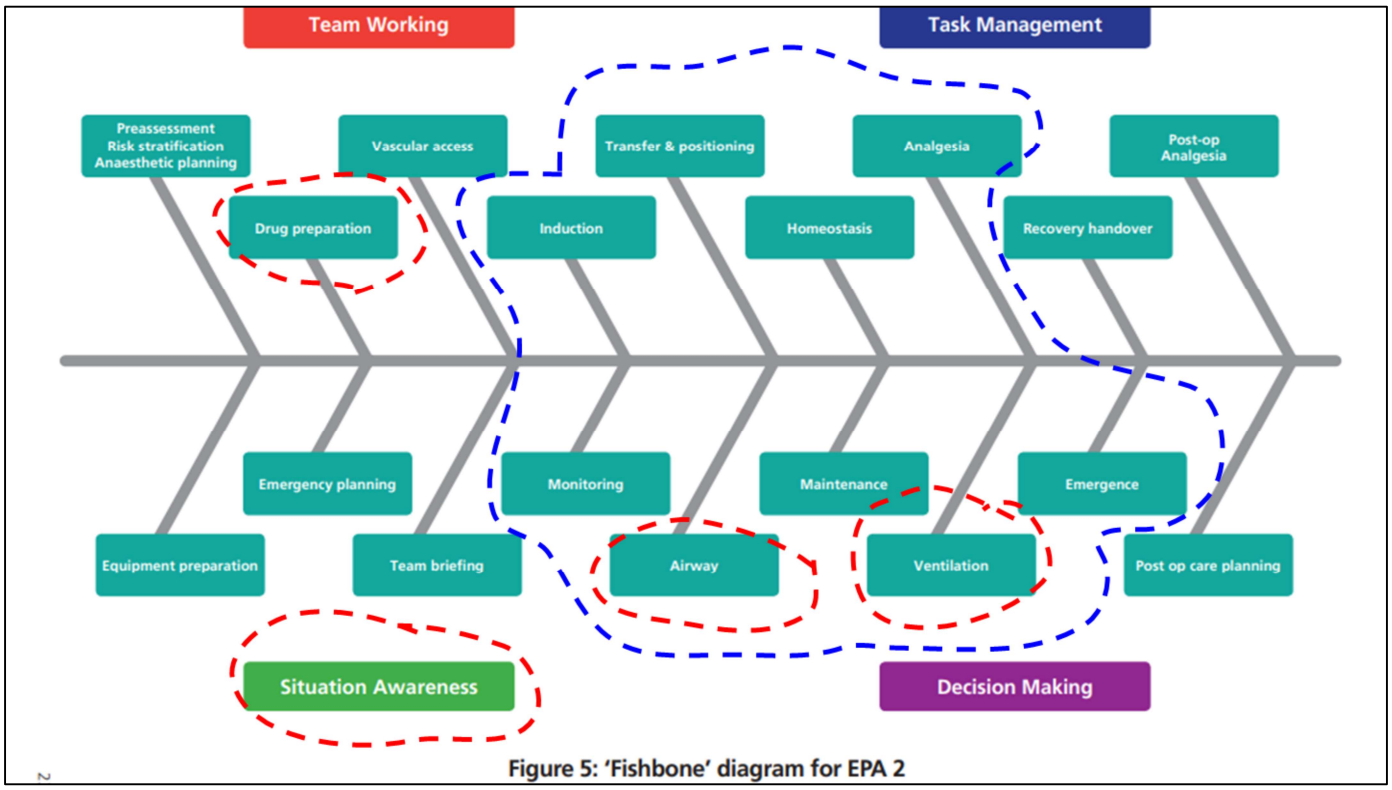
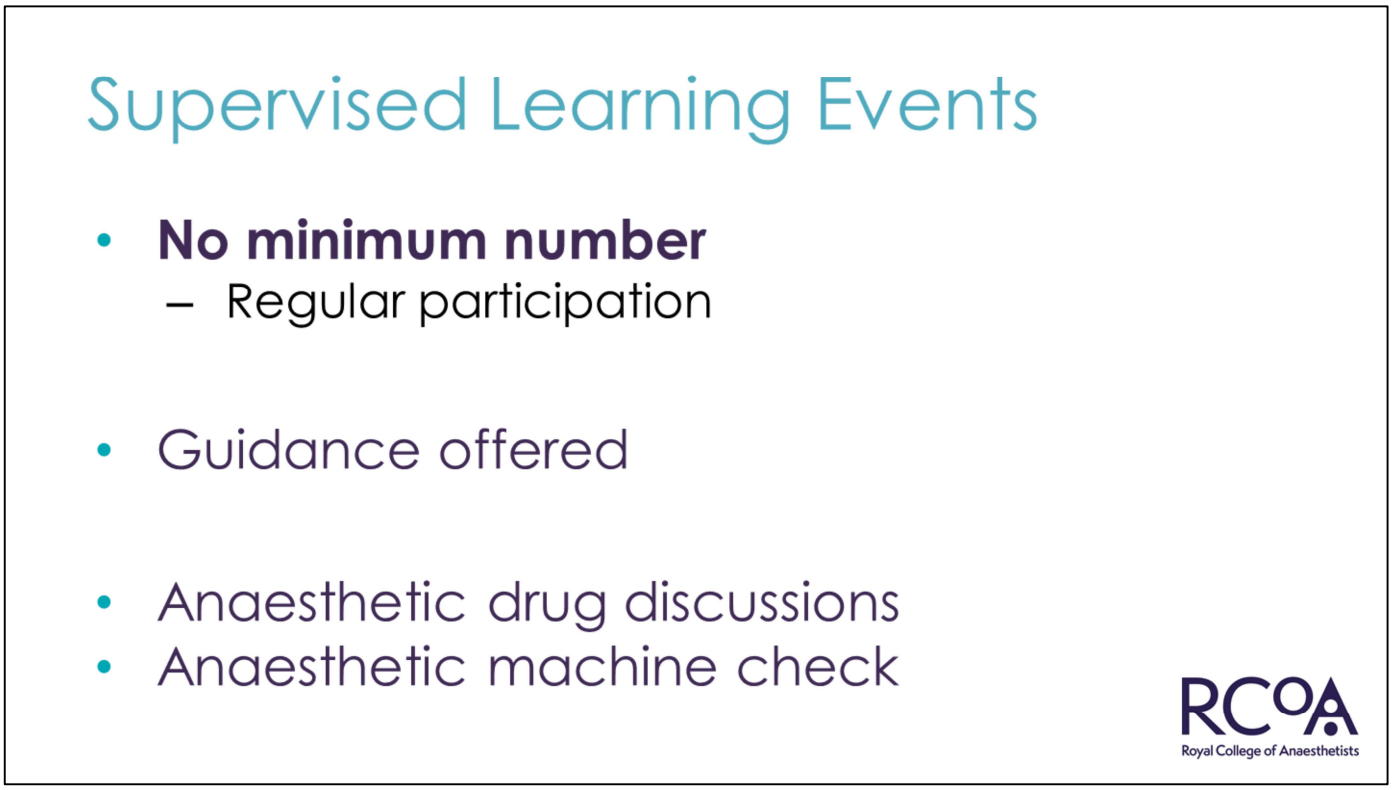


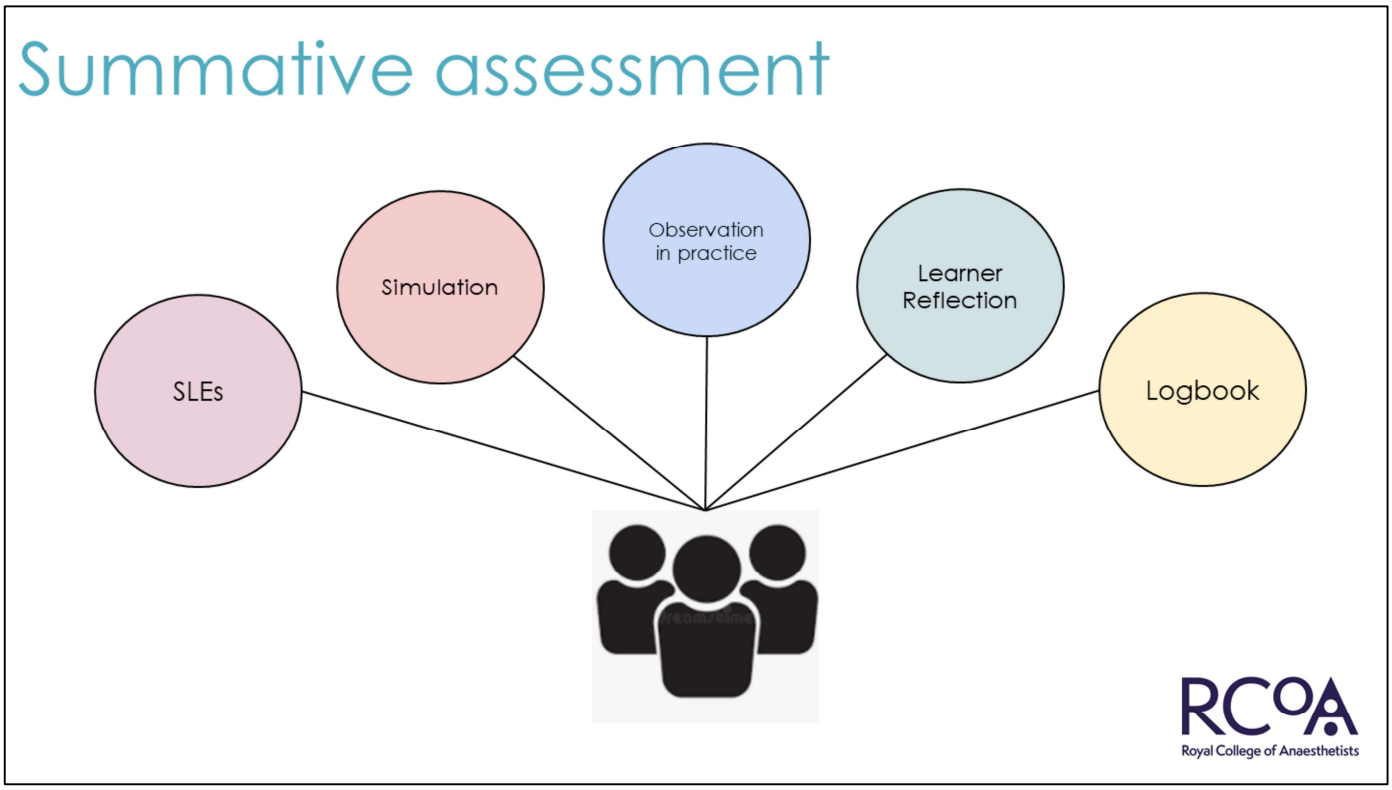
Figure 5: 'Fishbone' diagram for EPA 2

- To help plan SLEs and visualise the learning process, this fishbone diagram for EPA 2 was created
- It's a schematic that shows the new skills that the learners are grappling with
- It was suggested that trainees use their SLEs initially to focus on individual elements in isolation
- Clearly some of these elements require a lot of practise so the portfolio of SLEs could reflect that
- And as well as the technical elements, attention could also be directed to the non-technical skills and indeed; these could be the focus of an SLE
- The later SLEs were intended to capture how learners began to link their new skills together in order to practice with increasing autonomy
- So the trainer may agree that the trainee would be responsible for the intraoperative management and then use that for a focussed discussion afterwards.

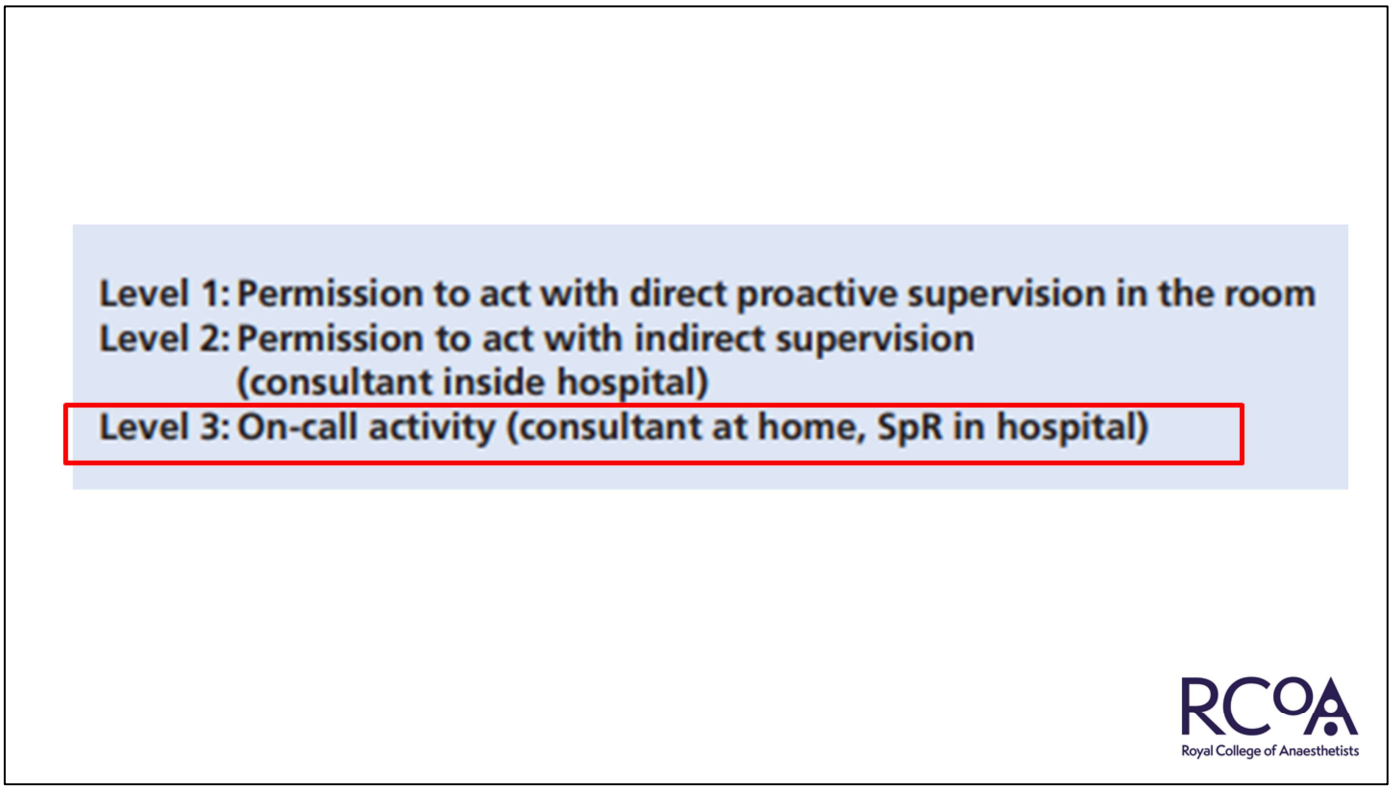


- There was recognition that there might be some important elements that learners might not select themselves, so the more prescribed elements, along with simulation, were discussions with trainers about core anaesthetic drugs and an anaesthetic machine check assessment.

- To deliver the trial, sites were encouraged to create a novice training faculty
- This is something that we know happens in some departments already
- It's a group of designated trainers that the novice trainees work more closely with
- For the trial, it was this group that was also responsible for carrying out summative assessment



- The novice training faculty were able to draw on multiple sources of information about trainee performance in order to judge their readiness to progress.



- This was when they were judged as ready to perform each EPA at the expected level of supervision, which in our trial utilised this 3-point scale.

Curriculum evaluation

- Mixed methods
  - Questionnaires
  - Analysis of trainee workbooks
  - Focus groups

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- We'll spend a few minutes talking through the important points that came out of the curriculum evaluation that was undertaken using mixed methods including questionnaire surveys, analysis of workbooks and focus groups.

Learning objectives better suited to clinical practice

Focus group, Consultant 6: *'splitting up in the EPA really describes the whole package, you know, a whole delivery of a package of care.'*

Questionnaire, Site 5 Trainee 1: *'Much more holistic approach to feeling 'independent' instead of focusing on specific aspects'*

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- Learners and consultants found that EPAs were a good fit for the expectations of clinical practice.

A focus on feedback

Focus group, Trainee 5: *'I much prefer... getting proper feedback from consultants about where you actually are, instead of just being like, yes, you're able to put an LMA in. Congratulations.'*

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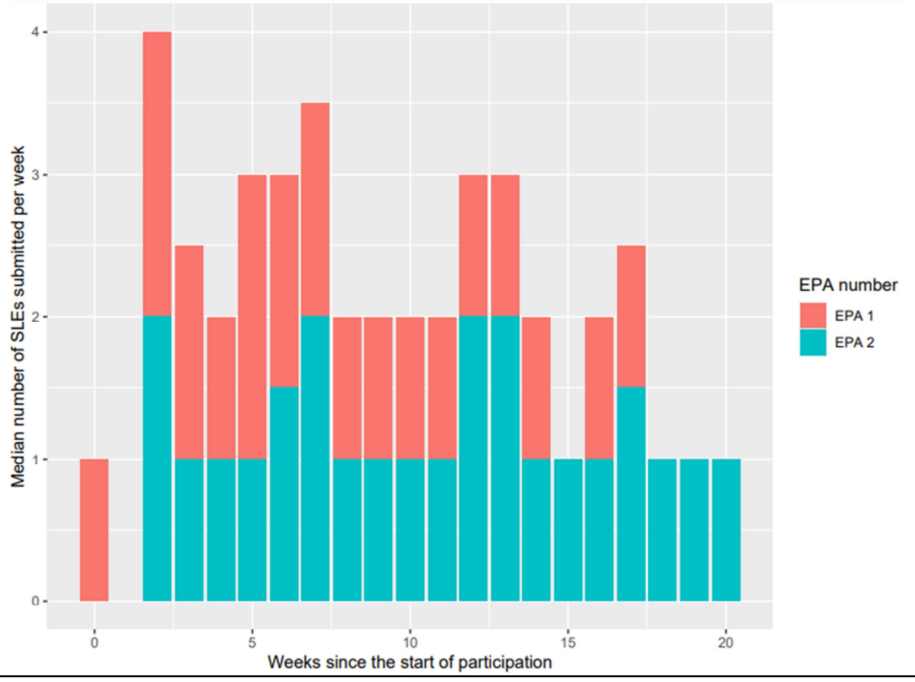
- The SLE approach that outlined earlier yielded clearer, more specific feedback that was geared towards development towards more independent practice.

Consistent participation



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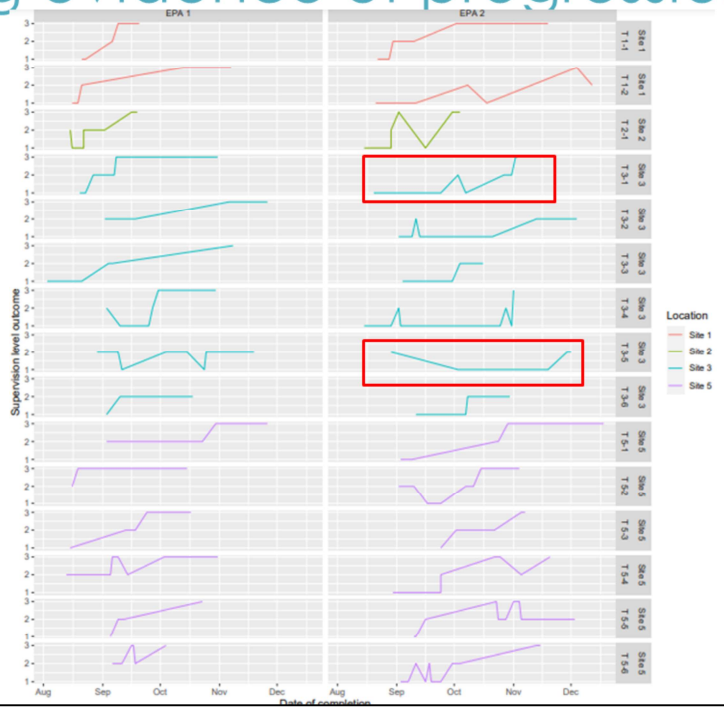
- It was found that, given greater freedom to plan their own learning activities, learners engaged consistently with SLEs throughout the novice period
- This graph, that summarises data from 265 SLEs, shows that trainees completed between 1 and 4 SLEs per week, with if anything greater participation at the beginning, which represents a change in behaviour from other literature on formative assessment that shows a tendency to defer.

Capturing evidence of progression



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- It was also found that the use of supervision level judgements could capture evidence of learning progression over the training period
- This figure shows supervision level outcomes for SLEs in each EPA overtime for a range of trainees
- You can see that it's possible to compare the rate of progression for different learners
- The second trainee here for example was progressing a quite a different rate to the first
- There's potential to use this sort of information to provide extra support proactively to the trainees who need it.

Novice training faculties

Questionnaire, Site 2, Trainee 2: *'They could give feedback on your progress from week to week which made it more meaningful and it was easier for them to let you do more with the patient each time.'*

Focus group, Consultant 5:*'You see what some of your colleagues have written and what level they felt the trainee had got to and then you're able to then push them that bit further.'*

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- The benefits outlined so far were also reinforced by having novice training faculties.

Space for expert judgement

Focus group, Consultant 6: *'I think from a college tutor perspective... they can all collect 19 bits of paper and...present them to you. And then at that point, what do you do?'*

Focus group, Consultant 5: *'Gut feeling on paper really, isn't it?'*

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- Evidence arose that collective judgement for summative assessment could lead to a more flexible and robust approach to managing progression.

Summary

- **EPAs were intuitive and applicable to practice**
- **SLEs for formative assessment**
  - gave learners greater freedom
  - encouraged regular participation
  - improved feedback
  - captured evidence of progression
- **Novice training faculties**
  - help create a positive learning environment
  - perform summative assessment

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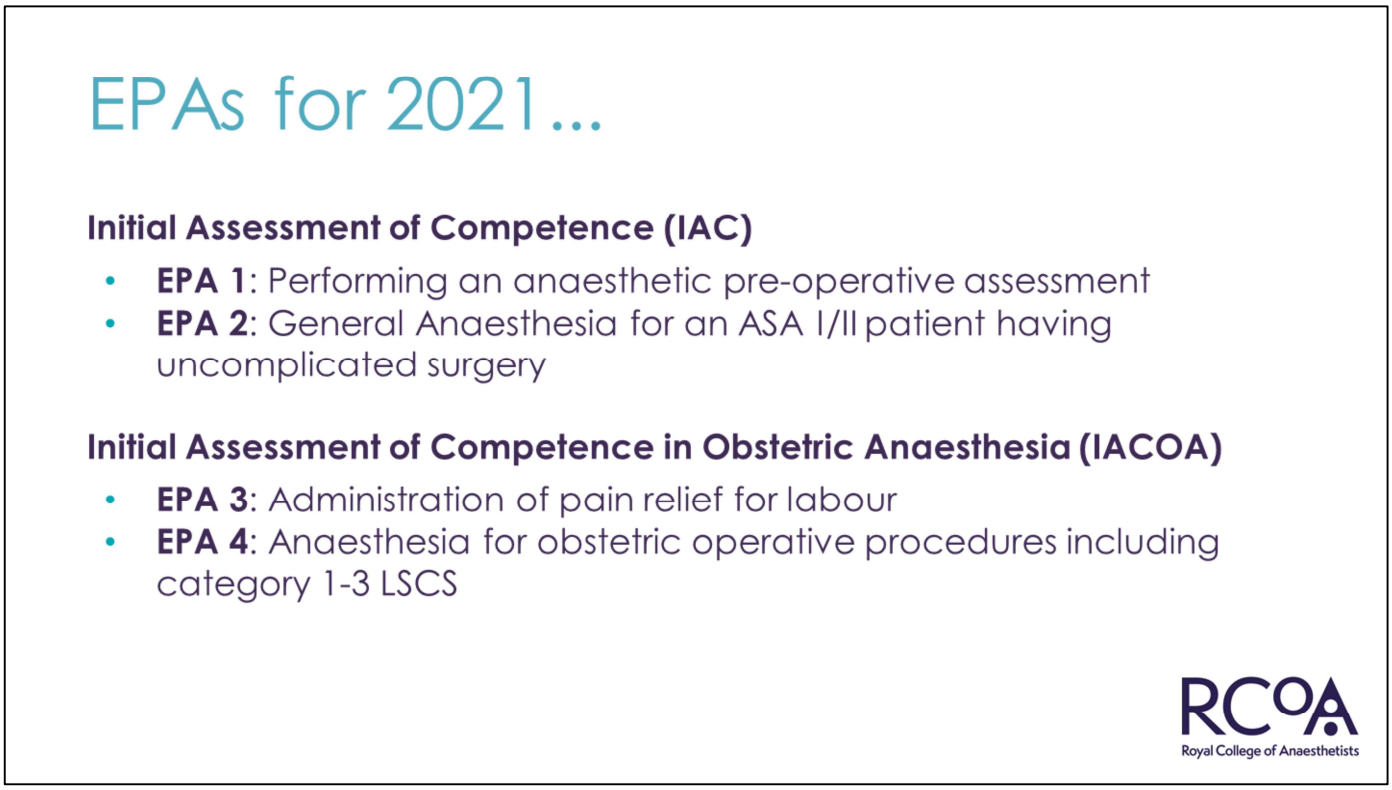
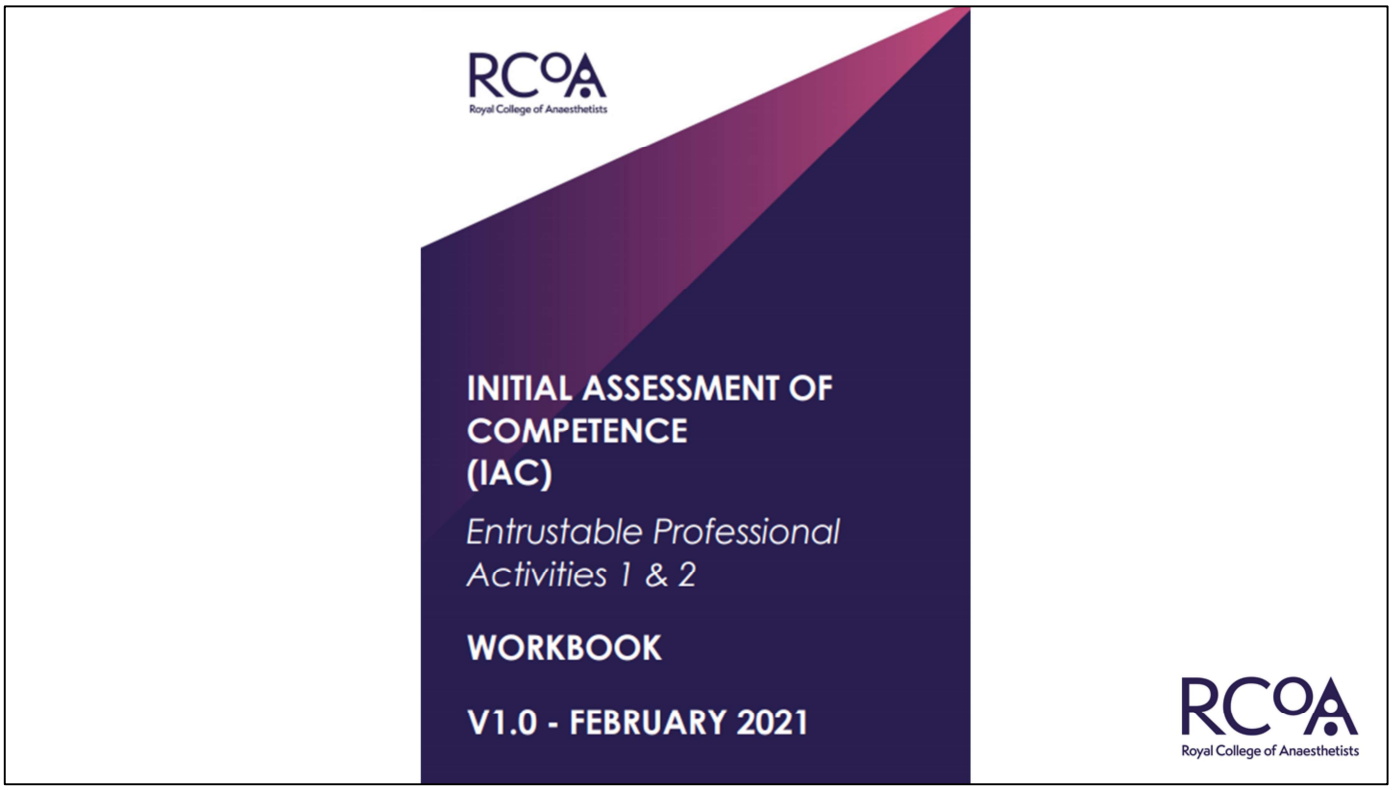
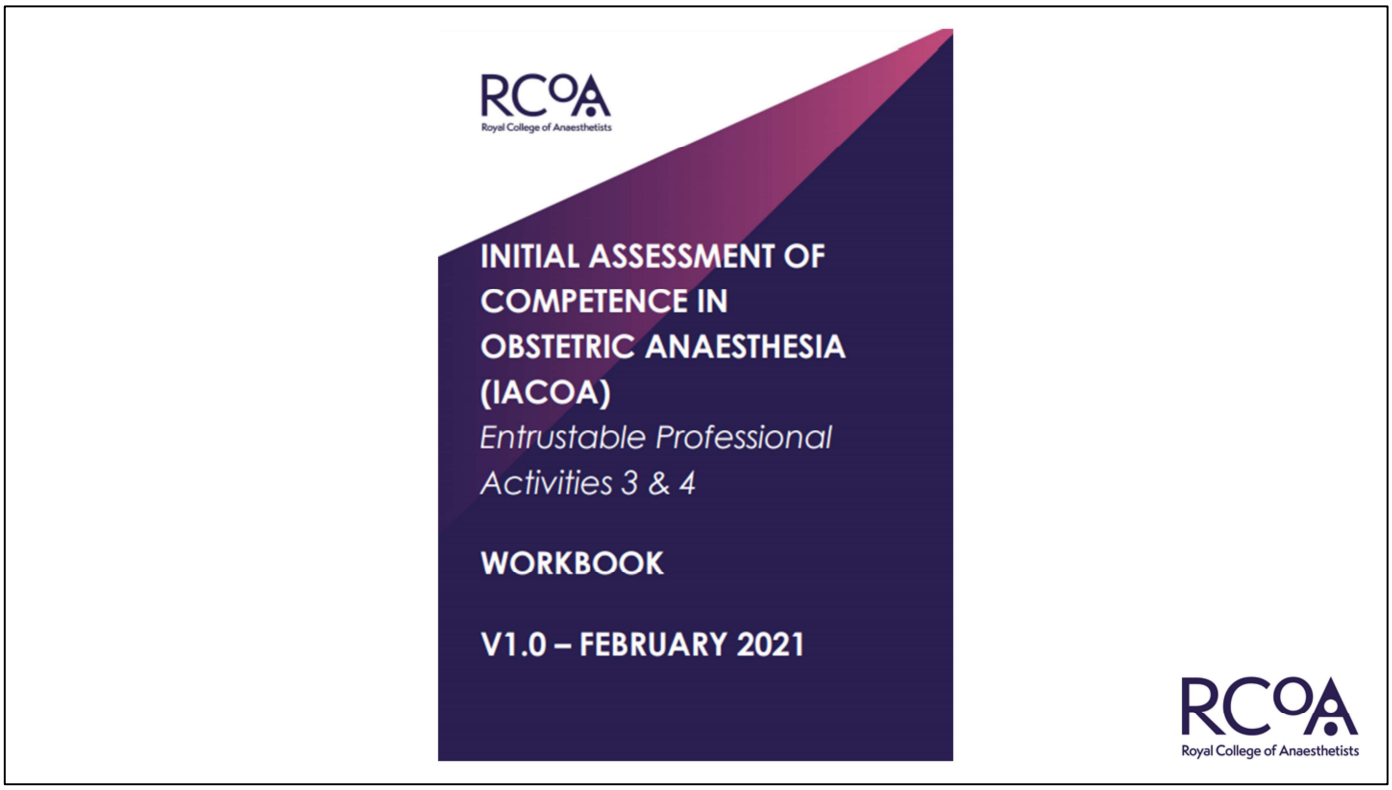
- In summary, work to date suggest that EPAs are an intuitive and relatable way of describing the core learning outcomes for the novice period
- The approach to formative assessment gives learners greater freedom and encouraged more consistent participation, generating useful feedback and capturing evidence of learning progression
- It was also found that the dedicated assessment faculty could not only improve the learning environment, but summative assessment by collective supervisor judgement is a more effective way to manage training progression.



- Having made some further modifications to the programme in order to align with the rest of the 2021 curriculum, EPAs 1 & 2 will now form the basis of the new IAC
- EPAs 3 & 4, which were devised by a group of obstetric anaesthetists, will be used for the IACOA.



- Workbooks, containing a comprehensive outline of each EPA and the expected level of practice have been devised and will be available for download from the College website.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INITIAL ASSESSMENT OF COMPETENCE IN OBSTETRIC ANAESTHESIA (IACOA)
Entrustable Professional Activities 3 & 4
WORKBOOK
V1.0 – FEBRUARY 2021
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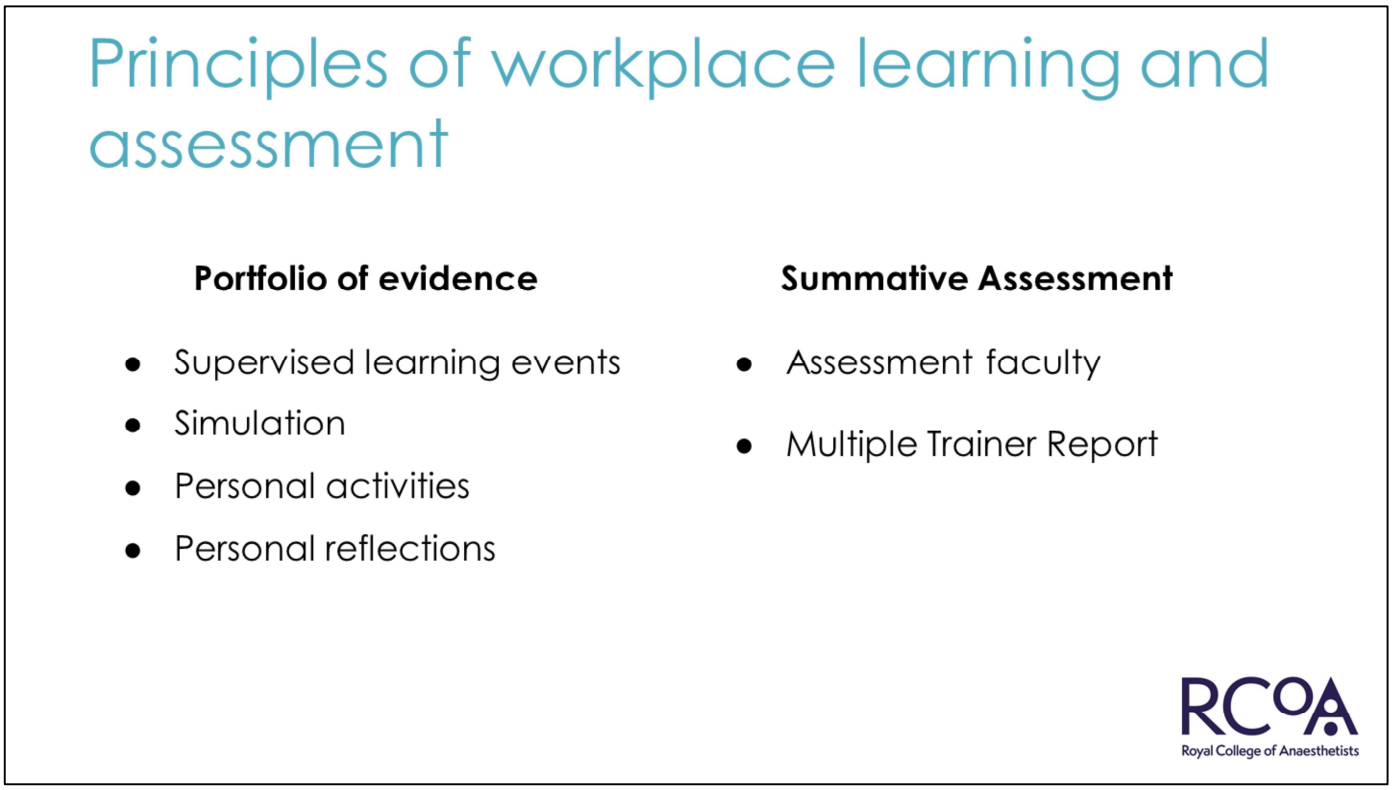
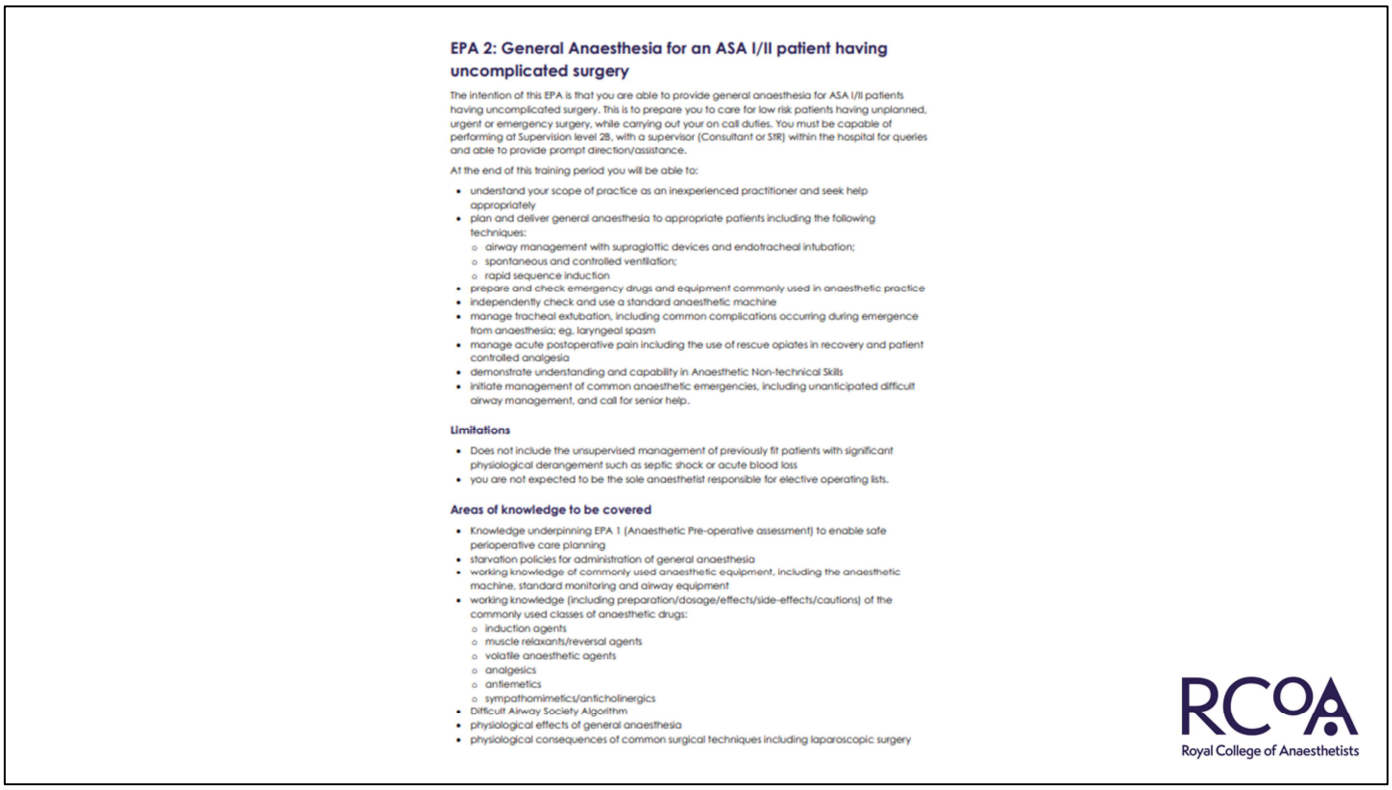


- The principles of workplace learning and assessment will be aligned with the approach taken throughout the curriculum
- Progress in each EPA will be illustrated by a portfolio of evidence, including SLEs, simulation, personal activities such as attendance at relevant courses or private study, supported by personal reflection on the experiences in training
- Summative assessment will be performed by the assessment faculty, with additional evidence collated using the Multiple trainer report tool.



EPA 2: General Anaesthesia for an ASA I/II patient having uncomplicated surgery

The intention of this EPA is that you are able to provide general anaesthesia for ASA I/II patients having uncomplicated surgery. This is to prepare you to care for low risk patients having unplanned, urgent or emergency surgery, while carrying out your on call duties. You must be capable of performing at Supervision level 2B, with a supervisor (Consultant or StR) within the hospital for queries and able to provide prompt direction/assistance.

At the end of this training period you will be able to:

- understand your scope of practice as an inexperienced practitioner and seek help appropriately
- plan and deliver general anaesthesia to appropriate patients including the following techniques:
  - airway management with supraglottic devices and endotracheal intubation;
  - spontaneous and controlled ventilation;
  - rapid sequence induction
- prepare and check emergency drugs and equipment commonly used in anaesthetic practice
- independently check and use a standard anaesthetic machine
- manage tracheal extubation, including common complications occurring during emergence from anaesthesia; eg, laryngeal spasm
- manage acute postoperative pain including the use of rescue opiates in recovery and patient controlled analgesia
- demonstrate understanding and capability in Anaesthetic Non-technical Skills
- initiate management of common anaesthetic emergencies, including unanticipated difficult airway management, and call for senior help.

Limitations

- Does not include the unsupervised management of previously fit patients with significant physiological derangement such as septic shock or acute blood loss
- you are not expected to be the sole anaesthetist responsible for elective operating lists.

Areas of knowledge to be covered

- Knowledge underpinning EPA 1 (Anaesthetic Pre-operative assessment) to enable safe perioperative care planning
- starvation policies for administration of general anaesthesia
- working knowledge of commonly used anaesthetic equipment, including the anaesthetic machine, standard monitoring and airway equipment
- working knowledge (including preparation/dosage/effects/side-effects/cautions) of the commonly used classes of anaesthetic drugs:
  - induction agents
  - muscle relaxants/reversal agents
  - volatile anaesthetic agents
  - analgesics
  - antiemetics
  - sympathomimetics/anticholinergics
- Difficult Airway Society Algorithm
- physiological effects of general anaesthesia
- physiological consequences of common surgical techniques including laparoscopic surgery

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- In each workbook there are detailed descriptions of each EPA, including the range of skills and knowledge that underpin them

Sources of Information used to assess Progression

Summative entrustment decisions will be based on the sources of information contained in Table 4. Some skills are assessed through simulation (see appendix for IAC Simulation Training Requirements).

Type of Evidence	Examples

Supervised learning events	• Regular completion of A-CEXs, DOPS & CBDs to capture the learning process and demonstrate the core knowledge, skills, attitudes and behaviours outlined above (see figure 3 for guidance)
	• these should always include:
	  ○ Anaesthetic Machine Check (DOPS)
	  ○ Core Anaesthetic Drugs (A-CEX/CBD)
	  ▪ induction agents
	  ▪ muscle relaxants/reversal agents
	  ▪ volatile anaesthetic agents
	  ▪ analgesics
	  ▪ antiemetics
	  ▪ sympathomimetics/anticholinergics.

Personal Activities & Simulation	• Simulation training requirements for EPA 2 (see appendix)
	  ○ novice anaesthesia skills and drills
	  ○ assessment of failed intubation drill
	• attendance at relevant courses and in-house teaching covering topics relevant to EPA 2.

Logbook of cases	• Appropriate number of cases, range of exposure to common surgical techniques and evidence of independent practice.
Reflections	• On difficult or challenging cases showing what was learned about how this influenced future practice
Multiple Trainer Report	• Assessment of progress for stage of training. • this will report on generic professional capabilities and knowledge and understanding relevant to EPA 2. ***NB: only one MTR, covering capabilities for both EPA 1 & 2, is required for the award of the IAC.***

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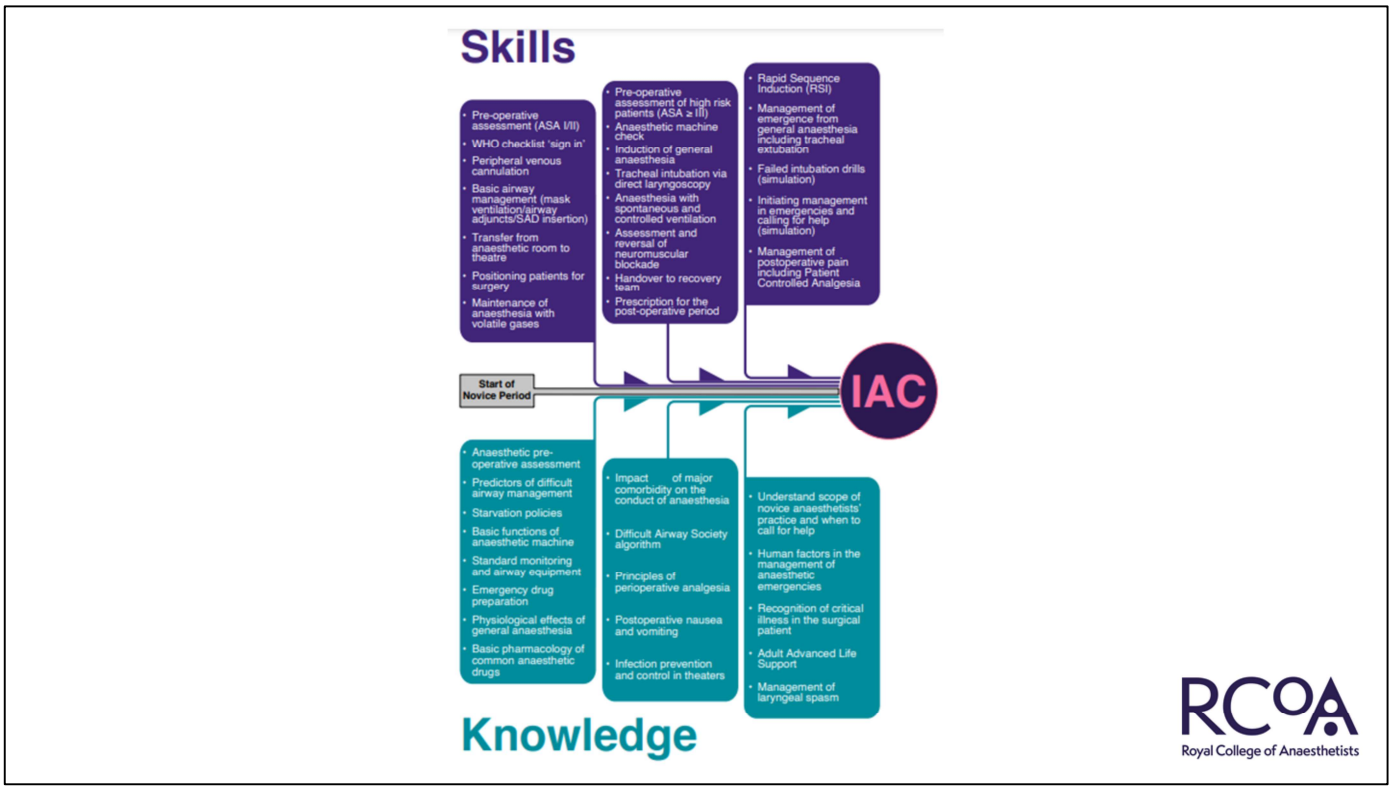
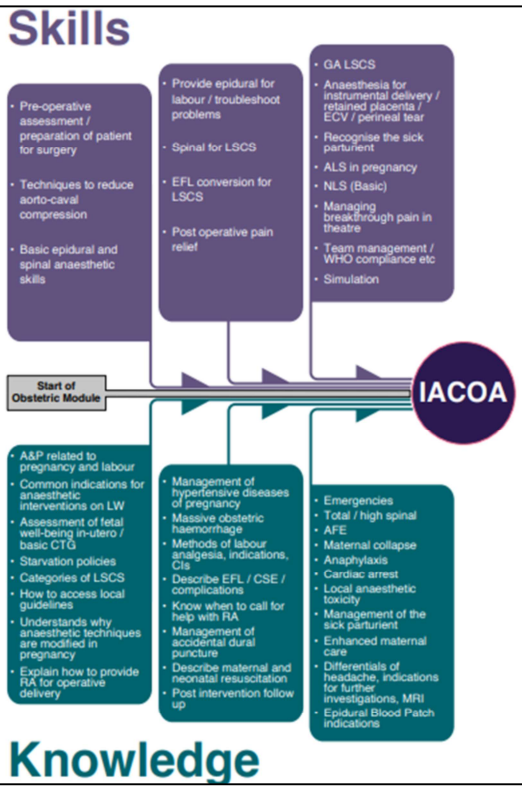
- There's also plenty of guidance for learners and trainers on how to build an appropriate portfolio of evidence.



- Effort has been made to present the information in a variety of ways, both as text, but also using infographics and diagrams.



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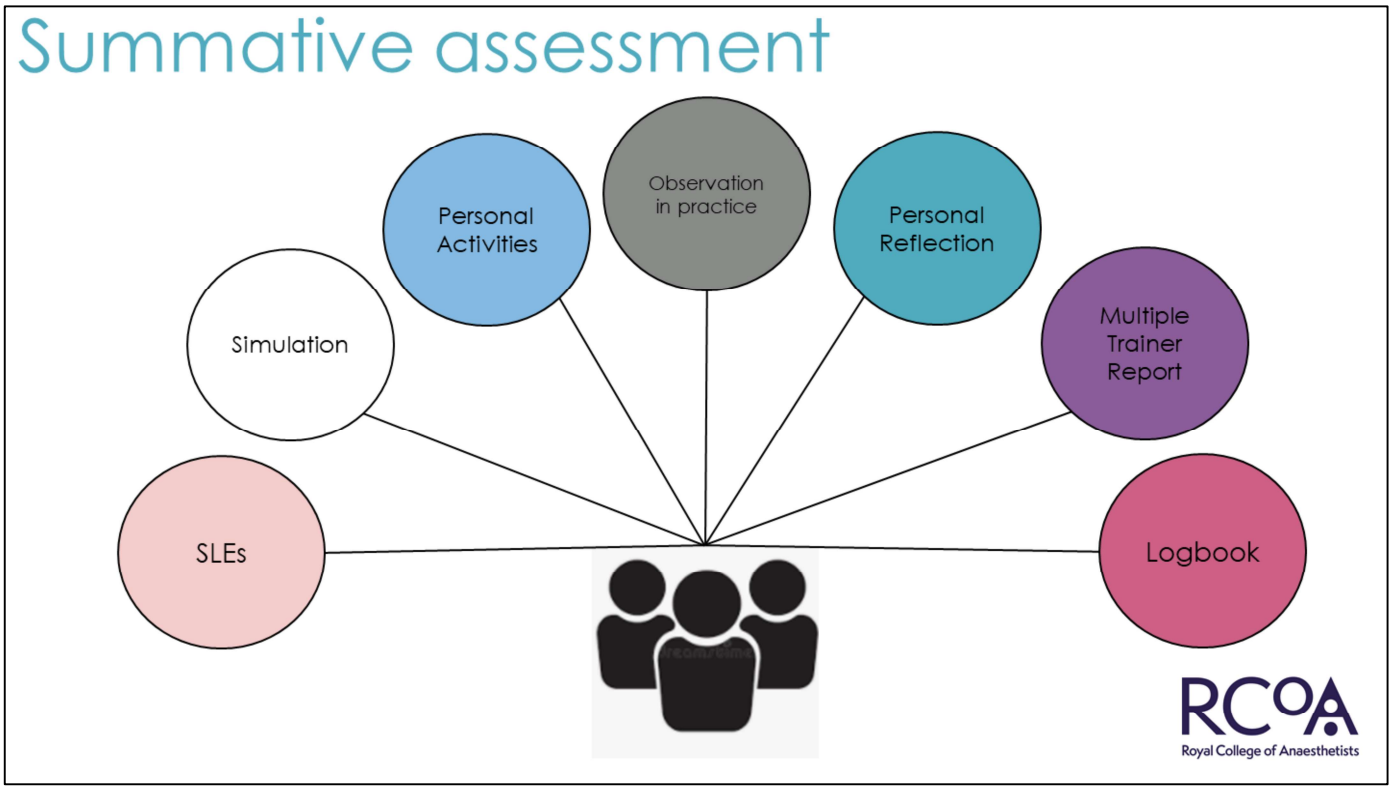

- For both the IAC and the IACOA, the assessment faculty will be able to draw on a range of information to complete the summative assessment that determines progression
- These programmes represent a major sea change in our approach to the assessment of competence in the workplace
- Recognising the role of the expert trainer faculty, will lead to a safer, more robust and more transparent assessment process.

IAC: EPA 1 & EPA 2

1	Direct supervisor involvement, physically present in theatre throughout
2A	Supervisor in theatre suite, available to guide aspects of activity through monitoring at regular intervals
2B	Supervisor within hospital for queries, able to provide prompt direction/assistance
3	Supervisor on call from home for queries able to provide directions via phone or non-immediate attendance
4	Should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols

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- To achieve the IAC, learners will need to perform each EPA at supervision level 2B.

IACOA: EPA 3 & EPA 4

1	Direct supervisor involvement, physically present in theatre throughout
2A	Supervisor in theatre suite, available to guide aspects of activity through monitoring at regular intervals
2B	Supervisor within hospital for queries, able to provide prompt direction/assistance
3	Supervisor on call from home for queries able to provide directions via phone or non-immediate attendance
4	Should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols

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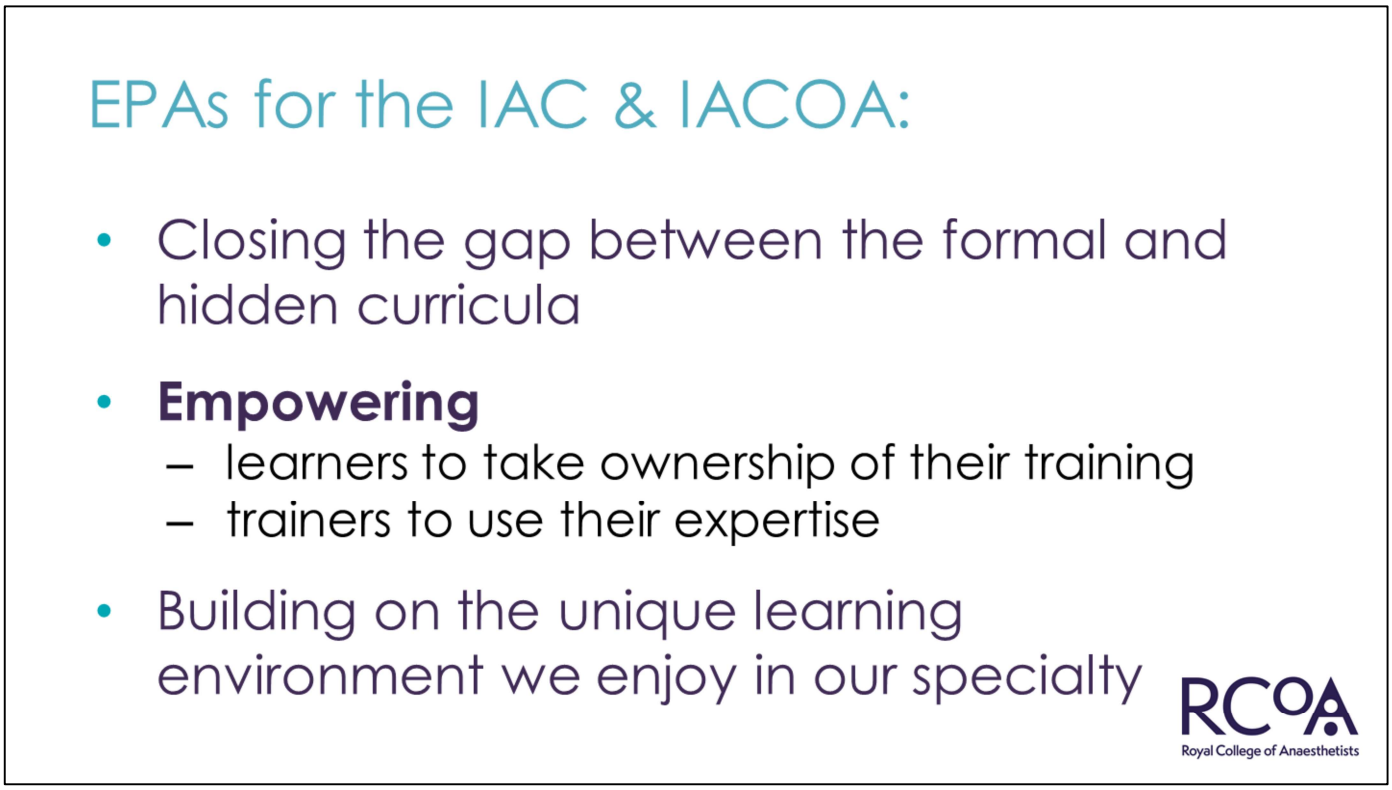
- For the IACOA, the expectation will be that trainees are capable of practicing at level 3.



- With EPAs for the IAC and IACOA, the gap is closing between the formal and hidden curricula
- This will empower learners to take greater ownership of their training and development and places the expert judgement of trainers at the heart of the assessment strategy
- This is an opportunity to build on the unique learning environment that we enjoy in our specialty.

References

1. Massie J & Ali J (2016) Workplace-based assessment: a review of user perceptions and strategies to address the identified shortcomings. Advances in Health Science Education 21:455–473
2. Ten Cate O. Entrustability of professional activities and competency-based training. *Medical Education* 2005;**39**: 1176–7
3. Ten Cate O, Chen HC, Hoff RG, Peters H, Bok H, van der Schaaf M. Curriculum development for the workplace using Entrustable Professional Activities (EPAs): AMEE Guide No. 99. *Medical Teacher*. 2015; **37**: 983-1002

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Any questions?