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## SBA FAQs

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### The Final FRCA: what is the point?

The College has a number of duties when it is examining anaesthetists for the Final FRCA. It has to:

- assess whether you have the knowledge, mental processing power and, to a lesser degree, the ability to handle a stressful situation. They are testing everyone to see whether you have reached a threshold level that is sufficient to allow you to cope with the clinical world beyond completion of the Certificate of Completion of Training. In education speak, this means that the exam is criterion referenced. It is designed to assess what you can do rather than where you sit within the exam-sitting cohort. This should mean that, in theory, everyone could pass any given sitting of the Final FRCA. Now there's a happy thought (although, equally, everyone could fail!).
- determine whether you can think about anaesthesia beyond pure recall of the facts. The College wants you to demonstrate an understanding of the concepts and

- principles, to be able to think ‘on your feet’ and appreciate different sides of an argument. In addition to the knowledge base you amassed for the Primary examination, you should have a good grasp of the current literature and an opinion on areas of controversy. Traditionally, the other phases of the Final FRCA exam have been used for testing higher level learning such as concepts and principles, with the MCQ paper testing a large number of individual knowledge points. With SBAs, the College is now looking to test processing power as well as pure recall in this phase of the exam.
- show that the College is relevant. Hence the focus on safety and up-to-date, topical, scientific, widely accepted subjects.
  - be in line with current trends in medical education.

What are SBAs?

The 2009 MCQ papers consisted entirely of multiple true/false (MTF) questions. These questions had a stem followed by five options, all of which may be true or false. From September 2010, the College will replace 30 of the MTF questions with SBAs. In these questions, there is also a stem followed by five options. These options include a best answer and four distractors. The candidate has to weigh up which is the best answer. To illustrate:

Example MTF question – stem and five true/false branches

The following are types of chocolate bar:

- |                   |     |
|-------------------|-----|
| a) Wispa          | T/F |
| b) Triple Trecker | T/F |
| c) Yorkie         | T/F |
| d) Opal Fruits    | T/F |
| e) Winalot        | T/F |

Answers a) True b) False c) True d) False e) False

Example SBA question

Which one of the following has the lowest proportion of chocolate?

- a) Galaxy
- b) Kit Kat
- c) Dairy Crunch
- d) Cadbury Dairy Milk
- e) Ripple

Answer: b

What does the MCQ paper consist of?

We can say with some certainty what the MCQ paper will consist of in September 2010 and for a few cycles thereafter. In its 2009 form, the paper consisted of 90 MTF questions to be answered in three hours. This gave 450 knowledge point tests. From September 2010, the College will replace 30 of the MTF questions with SBAs. This will provide 300 knowledge point tests from MTF and 30 from SBAs. The two styles will run in a combined paper for some time while the College gathers data comparing performance across the two paper styles. This will allow a standard to be created for the SBA question bank. (See ‘Are questions repeated?’)

## How many marks will I get for a correct SBA question?

With the mixed MTF/SBA paper, the College has stated that it will give one mark for each correct true/false answer in the MTF section. However, it has not yet announced how many marks you will receive for a correct SBA question. The implication is that it would be more than one but less than five marks.

## When is the paper set?

By the time the first exam containing SBAs starts, in September 2010, the Working Party for the Examiners Board will have spent at least 18 months on developing a bank of SBA questions. The final paper will be agreed upon two months prior to the examination date.

## Why has the College adopted this question style?

There are a number of suggested reasons why SBAs have been adopted.

SBAs are thought to be a better test of the learning required to work as an effective anaesthetist. Multiple true/false questions are an adequate tool to test pure factual recall. SBAs are thought to be better at testing the application or processing of knowledge. They therefore would seem more 'fit for purpose' when testing a clinician. Workplace conundrums usually involve 'What would I do if...?' questions rather than purely remembering an isolated fact.

Single best answers help to spread the range of marks in the exam, making it easier to separate good and bad candidates and in the absence of negative marking reduces the power of guessing.

Using MTFs, with random guessing the candidate would score a mark of approximately 50%.

In a 90-question MTF paper (450 knowledge point tests), random guessing would give 225 right and 225 wrong answers, and a mark of 50%.

A poor candidate would score about 65%

The pass mark would be at around 75%

An outstanding candidate would score 85%

In a 200-question SBA paper, random guessing would give 40 right and 160 wrong answers, and a mark of 20%.

If we assume the candidates' contributions to the marks scored above the random guessing baseline remain the same.

The poor candidate would score 44%

The pass mark would be 60%

The outstanding candidate would score 76%

While we are in this area we should discuss a third question type, the extended matching question (EMQ).

## Example extended matching question

- Spangles
- Space Dust
- Aero (mint)
- Cadbury Cream Egg
- Mars Bar
- Flake
- Kinder Egg
- Fry's Turkish Delight
- Lion Bar
- Snickers

Which of the above:

- 1) Is made from only milk chocolate?
- 2) Is a sweet, a toy and a surprise?
- 3) 'Helps you work, rest and play'?

Answer: 1) f    2) g    3) e

In reality, colleges adopting EMQs have mainly mixed them in with SBAs in papers of around 200 questions in three hours. However if we consider an EMQ only exam, random guessing would give 20 right and 180 wrong answers, and a mark of 10% if all the EMQs had ten options.

If we assume the candidates' contributions to the marks scored above the random guessing baseline remain the same:

- The poor candidate would score 37%
- The pass mark would be 55%
- The outstanding candidate would score 73%

The MTFs were popular because they produced five questions per topic area; but had the problem that they gave a 50/50 chance of correct guessing.

The SBA is less economical to write, with only one question per stem, but only produces a 20% chance of getting the correct answer by guessing. The EMQs are becoming increasingly popular with other colleges. An answer can usually be used once, or not at all, so the number of questions per topic is substantial. The chance of a correct guess in this example is only 10%. Many colleges are now adopting this format. The College has not yet announced adopting EMQs, but in our opinion it is only a matter of time before this happens.

What do SBAs test?

Single best answers can test a wide range of levels of understanding:

- They can test knowledge. This is usually in the form of the pure facts that the candidate may have read. A typical question would start with 'What' or 'Select'. There is usually only one correct answer.
- They can test comprehension. This is a test of understanding and goes beyond simple recall. Typical lead-ins start with 'Why' or 'How'. There is usually only one correct answer.
- They can test application. In this case the candidate may be asked to apply knowledge to a new situation. Typical lead-ins start with 'Choose', 'Select' or 'Identify'. There is usually only one correct answer.
- They can test analysis. This requires the candidate to demonstrate judgement based on the information presented. Typical lead-ins start with 'Determine', 'Evaluate', or 'Prioritise'. There may appear to be a number of answers that would work with the stem. It is the candidate's job to find the single best answer.

What structure do SBAs have?

If the SBA is just testing knowledge, it usually has a simple form with a question, followed by five options. One of the options will be correct and the other four are called distractors. In well written questions the distractors should all seem plausible, and look roughly similar to the correct option. For example, they should not all be double the length of the correct option.

For tests of comprehension, application or analysis, the question will be preceded by a stem. For a clinical question, this will usually involve a clinical scenario. The stem should be fairly short (around 60 words), should not contain a question and should not

have content that is repeated in the options. The stem is then followed by the lead-in, which is the sentence asking the question. This might be, for example, 'What is the likely diagnosis?' This is again followed by the five options.

### **Aren't SBAs just longer true/false questions?**

In some cases this assertion is correct, except that the guessing candidate has worse odds of success. However, the clue to these questions is in the name. 'Single best answers' means that often you are being asked to work out which answer is the best. Several of the options may work, but only one is the best.

### **How do I answer SBAs?**

This will sound like an echo from your earliest days of education, but it doesn't hurt for us to say 'make sure you read the question carefully'.

A good tactic is to read the stem and lead-in, cover up the options and ask yourself what the correct answer would be. If you are 100% confident of the answer and this answer appears in the options, it is most likely to be correct.

If you are not in the lucky position of definitely knowing the answer and are trying to work it out, it is very important to not just settle on the first option you see that looks correct. Read all the options against the lead-in and ask yourself: 'Which one fits best?'

In trials of SBAs with trainees we have noticed that they often find that two of the options can be discounted immediately, leaving two or three options to whittle down to one. If this happens to you, go back and read the stem, looking to see if there is anything within the detail that will allow you to reduce the options further. It may end up with a wild guess between two final options, but at least your odds of guessing correctly have increased from 20% to 50%.

Even if you only have the vaguest notion about the subject area, apply any knowledge you have and make an educated guess. Do not leave a blank.

It is also important to state that only one mark per question should be made on the answer sheet. More than one mark and the candidate will score zero for that question.

### **How are the sub-specialties represented in the paper?**

The initial samples produced by the College, and the corresponding information, stated that the SBA questions would be used to test 20 questions in clinical anaesthesia, 5 in intensive care medicine and 5 in pain management. This ties in with the College stating that it is using SBAs to test clinical decision-making. The other areas of the MCQ paper, such as the basic sciences and clinical measurement, are not represented in the College's initial examples. We have included some questions in these areas in this book. The SBA question is enormously flexible and works well with certain lines of enquiry about most subjects. We predict that the College will progressively increase the proportion of SBAs in the Final FRCA MCQ paper. Even if just testing an area of knowledge that a good candidate would find easy to spot the correct answer, one of the great advantages of an SBA question is that, with four distractors, the chances of a successful wild guess by a candidate without the required knowledge drops from 50% to 20%.

### **Will the College increase the proportion of SBA questions in the examination?**

For the foreseeable future the College has stated that it will persist with the MTF questions to test pure knowledge recall. With time, once the College has enough data and experience with SBAs we predict that the MTF-type questions will be phased out.

The plan for 2010 is 30 SBA questions to fill an equivalent of one hour of the paper. We would also predict that the number of SBAs per unit time will increase. Typically

other colleges experienced with this question style have asked 200 SBAs in a three-hour paper. This may well be where the paper is heading in a few years' time. However, the College has generally given 18 months to two years warning of any major changes to the exam system, so if you are planning on sitting the exam within the next nine months and you have not heard that anything is changing for your exam, do not worry about last-minute changes to the exam structure.

### **How much time should I allocate to these questions?**

At the time of writing this book, answering this question involves a little guesswork. The experience with other colleges, such as the Royal College of General Practitioners, adopting SBAs was that a single question took just under a minute to answer and that answering 200 questions in 180 minutes was tough but achievable. For the initial introduction, our College has been rather more generous, replacing one hour of the exam with just 30 SBAs. Our advice would have to be, divide the time evenly, stick to time and whatever you do ensure that you answer all the questions. Running out of time and leaving out questions is exam suicide. If the College turns the heat up by reducing the time or increasing the number of SBAs, it will become imperative to practise your skills at nailing down the best answer in the shortest time possible.

### **Should I answer the questions in order?**

Some people like to wander around an MCQ paper, answering the ones they know first while trying to recall information on the ones they are unsure about. If this is the only tactic that works for you, then you should stick with it. However, we would strongly recommend that you avoid this plan if you have a choice. Wandering around is a bit of a hangover from negative marking where some people would use the (flawed) tactic of answering only the questions they were absolutely sure about. In this exam you have to answer all the questions, so start at the beginning and carry on through to the end. This is the most time-efficient tactic and helps to minimise transcription errors on your answer sheet. Some colleges use computer input centres where the computer does not let you flit around the paper, and this may be a path the College follows in the future.

### **Are there clues in the way the question is worded?**

If the question is well written, the answer to this question is 'No'. Occasionally, poorly written questions may slip through and may be identified by some of the following signs:

- Distractors of different length to the correct answer: this usually takes the form of a long correct answer with short distractors.
- Distractors of different style to the correct answer: for example, this could be numerical data presented in a different style.
- Options that overlap should not occur and would usually be distractors.
- Options containing double negatives should not occur and would usually be distractors.
- Options that contain some of the stem should not occur and would usually be distractors.
- Emphatic statements or absolute terms such as 'always' or 'never' are often incorrect in medicine and would usually indicate a false statement.
- Grammatical errors: the option should grammatically follow the stem. Failure to do this would imply that it was written as an afterthought and is more likely to be a distractor.

- Only one option contains all the common variables. For example:
  - a) Give low flow oxygen, 1000 mL fluid challenge, hydrocortisone 200 mg iv, chlorpheniramine 10 mg iv
  - b) Give high flow oxygen, 2000 mL fluid challenge, hydrocortisone 200 mg iv, chlorpheniramine 10 mg iv
  - c) Give high flow oxygen, 1000 mL fluid challenge, hydrocortisone 200 mg iv, chlorpheniramine 10 mg iv
  - d) Give high flow oxygen, 1000 mL fluid challenge, hydrocortisone 100 mg iv, chlorpheniramine 10 mg iv
  - e) Give high flow oxygen, 1000 mL fluid challenge, hydrocortisone 200 mg iv, chlorpheniramine 1 mg iv
 By eliminating factors that occur only once, you come up with the correct answer 'c'.

If you are having a complete wild guess, some of these clues may guide you, but do not let them put you off if you have knowledge that indicates a specific answer.

### If guessing, should I always answer 'd'?

When we first started writing SBAs we noticed a preponderance for putting the correct option in the 'Option d' slot. We thought this was because we wanted the candidates to work through all the options before spotting the correct one, but didn't want to make it so obvious by putting all 'e's. We noticed then that when reading each others' questions you would start by reading Options 'd' and 'e' first. Once identified, we made sure that the correct answer was randomly sprinkled through the options. Each letter is fairly evenly represented throughout the book as the correct option and this should be the case in any well written paper.

### Are questions repeated?

From paper to paper, the College will definitely repeat MCQ questions. In particular, we think it is likely that they will repeat SBA questions as their question bank will be smaller for SBAs compared to the MTF questions, and they need to repeat a minimum proportion of good discriminator questions (the questions that the good candidates get right and the worse candidates get wrong) across a number of exams to maintain temporal validity. This is the process of standard setting whereby the pass mark is shifted to take into account how today's cohort of candidates performed compared to previous years answering the same questions. The need to test the same questions on subsequent cohorts is also required to allow the performance between the MTF and SBA sections to be reviewed over a number of exam cycles to test the robustness of the new SBA assessment tool.

### How should I revise for this exam?

Revision tactics are highly individual so you are the only person who knows what's best for you. We can only give general advice, but there are some universal truths. The biggest of these is that the best way to bullet-proof yourself against failure is to know loads. You cannot pass this exam without chewing a certain volume of cardboard. Some people work best by sitting down and reading 2500-page anaesthetic reference books from cover to cover three times. Other people prefer darting in and out of smaller books. Some people like to keep connected to e-learning resources via their mobile phone. If a particular system has previously proven successful for you, then stick with it. We feel that having a plan that ensures you cover as much of the syllabus as possible is very important. This will give you much greater confidence that you are not going to get rolled over in the exam by a difficult SAQ or viva question. As long as you cover all the important topics, a variety of revision tactics is our preference as it will maintain a



fresh feeling when learning. Do not waste opportunities to revise. This may involve a question and answer session in theatre with a consultant, listening to a podcast while cycling to work or reading a study guide chapter in the bath. Do not underestimate the value of reading the journals. Examiners love visiting the journals as sources for exam question topics. This is because the journal articles are usually, relevant, up to date, scientific and peer reviewed. Remember, this was one of the College's missions under 'The Final FRCA: what is the point?' Revising from journals is a skill, but a fairly easy one to acquire. People often get put off by approaching the journals as the exam looms because the content is not so readily laid out as it would be in a textbook. The keys are to be able quickly to work out what not to read and to avoid getting distracted by trivia. Editorials, review articles and the introductions or abstracts of clinical research papers are where the best material is usually found.

### How should I prepare for this exam?

In addition to revising, it is very important to practise answering MCQ questions. Forming a study group will help pool resources of MCQ questions. If you get an answer wrong, work out why. Good MCQ practice resources should explain their answers and give you guidance as to why you may have got an answer wrong. Sometimes this may have been because the question was poorly written. Sometimes it may have been that you misread the question. More often than not, it is because you are short on knowledge in that area. If you think the question was relevant, use a failed question to guide you as to where you should revise next.

### How should I use this book?

This book has been laid out as four papers with 75 questions in each paper. If the College adopts the 200 SBAs in three hours format, a 75-question paper would take 67.5 minutes. If the College persists with its projected 30 questions per hour, then you have a slightly more luxurious 2 hours 30 minutes to complete a 75-question paper from this book. We would recommend that you choose a practice experience that mirrors current practice by the College and see how you perform under exam conditions. Although this book would also be suitable for learning by dipping in and out of a few questions and looking up the answers, the most useful experience would be gained by repeatedly testing yourself to hunt out the best answer under exam conditions and time constraints. In addition to providing exam practice, the question papers are followed by a section with focused explanations that contain invaluable information about the topic areas covered and give some insight into how questions are constructed. We have tried to cover a broad sweep of the syllabus and address questions that cover important educational points.

*Know plenty, practise loads and always be lucky.*

James Nickells  
Toby Everett  
Ben Walton



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# Question Papers

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# Paper A

## Question 1

Regarding albumin, the following statements are true except which one?

- a) Albumin is a negative acute phase protein
- b) A common cause of hypoalbuminaemia is starvation or malnutrition
- c) In health the liver produces approximately 10 g per day of albumin
- d) The circulation half-life of albumin is approximately 18 days
- e) The majority of total body albumin is found in the extravascular compartment

## Question 2

Which of the following statements regarding sugammadex is true?

- a) It is a modified  $\alpha$ -cyclodextrin
- b) The drug forms complexes with steroidal neuromuscular blocking drugs with a ratio of 1:2
- c) Following sugammadex administration to reverse rocuronium-induced neuromuscular blockade the measured total plasma rocuronium concentration will rise
- d) The majority of the drug is metabolised and excreted by the kidneys
- e) Sugammadex exerts its effect by binding with rocuronium at the neuromuscular junction

## Question 3

Pulmonary vasoconstriction may be caused by

- a) Hypothermia
- b) Smoking 'Crack' cocaine
- c) Volatile anaesthetic agents
- d) Calcium channel blockers
- e) Positive end expiratory pressure

## Question 4

Regarding central neuraxial blocks, which one of the following is most likely to cause permanent neurological injury?

- a) An epidural sited for obstetric indications
- b) An epidural sited for adult general surgical indications