Report on the Short Answer Question Paper

March 2015

The Short Answer Question Paper

The Short Answer Question (SAQ) paper examines a candidate's knowledge of the Basic and Intermediate sections of the training curriculum specified by the Royal College of Anaesthetists. Because the time available for each question is limited, this paper tests judgment and the ability to prioritise information within the answer, not simply factual recall. This will be easiest for candidates with appropriate knowledge and experience of the subject matter.

The questions used in each SAQ paper reflect the breadth of knowledge required. Questions currently in the database are updated or modified in light of new knowledge, current national practice or recommendations from relevant governing authorities before inclusion. Candidates should not place their faith in "question spotting"; the breadth of the syllabus means that topics are re-visited infrequently.

Model answers

The SAQ questions must adhere to a set of rules which govern both their overall structure and the content of the model answer template. All questions have to be mapped to a specific section of the Basic or Intermediate syllabus. To facilitate an objective and reproducible marking process, key facts in the answer template are bullet pointed and assigned relevant marks. The marks available for each section of the question are clearly indicated. All questions are subjected to an exhaustive editing and peer review process before use in an examination.

Structure of SAQ paper

The structure of the SAQ paper is well established and contains six questions from each of the mandatory training units, and six from the general duties and optional modules.

- Mandatory units: neurosurgery/radiology and neurocritical care, cardiothoracic surgery, intensive care medicine, obstetrics, paediatrics and pain medicine.

- General duties: airway management, day surgery, critical incidents, general / urology / gynaecology surgery, ENT / maxillofacial / dental surgery, management of respiratory and cardiac arrest, non-theatre duties, orthopaedic surgery, regional anesthesia, sedation practice, transfer medicine, trauma and stabilisation practice.

- Optional units: anaesthetic practice relevant to ophthalmic surgery, plastics & burns surgery, vascular surgery and advanced sciences (anatomy, applied clinical pharmacology, applied physiology/biochemistry, physics/clinical measurement and statistical basis of clinical trial management).

Candidates are advised to prepare detailed revision notes for the mandatory subjects outlined above. This will advantage them significantly when writing the SAQ paper. The Basic and Intermediate sections of the syllabus give the specific topics that should be addressed.

Candidates should not underestimate the importance of the "advanced sciences" or believe that they have left these topics behind at the Primary Examination. This knowledge may be tested in any of the written or oral sections of the Final FRCA examination.

The SAQ paper is written to contain questions with varying levels of difficulty;

- 2 questions adjudged to be hard / difficult (pass mark 10-11 /20)

- 6-8 questions adjudged to be moderately difficult (pass mark 12-13 /20)
- 1-2 questions adjudged to be easy (pass mark 14 /20 or more)

The level of difficulty and pass mark are finalised using a process called Angoff referencing, which takes place during the "Paper Checking" and "Standard Setting" meetings of the Board of Final Examiners. Angoff referencing uses the knowledge of the Examiners to set a reasonable pass mark for each question such that a "typical" trainee with appropriate preparation and adequate knowledge will perform satisfactorily.

Quality Control for the March 2015 SAQ paper

Friday 12th December 2014 – Paper Checking Day (PCD)

- For PCD the Board of Examiners convened and were divided into six "tables" each led by a member of the SAQ core group. Each "table" was provided with two questions and model answers which were checked for factual accuracy, clarity of language, amended if necessary, and had a provisional pass mark assigned. These pairs of questions are marked by each respective "table" of Examiners after the SAQ paper is written by the candidates. This helps to ensure that a consistent standard is maintained throughout the SAQ process.

Wednesday 18th March 2015 – Standard Setting Day (SSD)

- Four anonymous scripts (without candidate or College reference numbers) were marked by each of the six Examiner "tables". These scripts were selected by the College officials on the basis of MCQ scores to represent the spectrum of ability within the candidate cohort and to allow Angoff referencing to be finalised. The MCQ results for the papers are not known by the Examiners. Subsequent discussion within Examiner "tables" ensured that each script was awarded all the marks allowed by the answer template, and that every Examiner applied a consistent standard across all four candidates. At the end of SSD a pass mark was confirmed for each question and the boundary for a poor fail determined.

Ultimately, six different Examiners are involved in marking a candidate's paper, each marking two of the twelve questions. This eliminates any risk of bias which may be possible with a single assessor marking all twelve questions. The Examination Department staff scrutinise the submitted marks and clarify any ambiguities within the marked scripts before individual scores are ratified.

Results - Thursday 2nd April 2015

The overall pass rate for this paper was 45.3%

This compares with recent SAQ papers

September 2014	30.32%
March 2014	60.32%
September 2013	78.14%
March 2013	67.36%

Analysis of Results

- Candidates who failed the SAQ paper tended to produce at least 3 answers which were deemed to be poor fails, and a surprising number generated 8-10 such scores. Inexperience and/or poor preparation must explain these data.

Additionally, candidates continued to disadvantage themselves in a number of familiar ways;

- Failing to answer the question asked. For example, in the opening stem of question 2 Autistic Spectrum Disorder was fully defined as ASD, an NHS approved abbreviation. But many candidates chose to answer a question on Atrial Septal Defect, which was not defined and scored no marks.

- Poor weighting of answers – the marks allocated to each section of the question are clearly indicated. Writing extensively on the low scoring sections of the question to the detriment of sections where more marks are available limits the maximum score attainable. This probably reflects poor detailed knowledge of the subject.

- Giving general and superficial answers to specific questions – e.g. “give oxygen” instead of dealing with specific details of management.

- Illegible handwriting – Examiners take great care to extract answers from a candidate’s script, but it remains true that only material that can be read will achieve a score. Candidates are encouraged to set out their answers in a “bullet point” or “table” format which will aid legibility and time management, and also serve as an aide memoir to the number of key points required for each section. See the answer templates given as examples in the SAQ Chair’s report for the September 2014 SAQ paper.

Results for Individual Questions

The performance of the candidate cohort in each question is subjected to mathematical analysis before publication of the results, and point biserial correlation coefficients are calculated. Of the twelve questions, one had very strong correlation with candidate performance as judged by their total score, nine had strong correlation and questions 5 and 11 had moderate correlation. The reliability and consistency of the March 2015 paper as judged by the Cronbach’s alpha statistic of 0.77 is slightly higher than for the three most recent SAQ examinations.

Question 1 Neuromuscular blockade
Pass Rate 52.7%, 10.9% of candidates received a poor fail

The pass rate is disappointing as these agents are “meat and drink” to the profession. The mechanisms by which the action of rocuronium spontaneously degrades were poorly understood. Sugammadex may not be readily available in some Trusts but it is reasonable to expect specialist trainee anaesthetists to understand its pharmacology and clinical usage.

Question 2 Autistic Spectrum Disorder
Pass Rate 46.2%, 22.1% of candidates received a poor fail

It was anticipated that candidates would find this subject matter to be difficult and this was borne out by the pass and poor fail rates. Autistic Spectrum Disorder (ASD) is an important issue within paediatric anaesthetic practice, and this result suggests specific teaching on the topic needs to be undertaken in all Schools of Anaesthesia. Failure to read section (b) correctly led to low scores as candidates did not realise that the question referred to all children not just individuals with ASD.

Question 3 Asthma
Pass Rate 47.0%, 8.5% of candidates received a poor fail

The poor pass rate for this question is of concern as patients with asthma are regularly encountered in daily practice. The treatment of common co-existing medical disorders is specified in the syllabus for the CCT. In general the management of acute bronchospasm was more thoroughly answered than the aetiology and causation sections. This was reflected in a lower poor fail rate compared to other questions which is reassuring for patient safety under general anaesthesia.

Question 4 Critical Illness Weakness
Pass Rate 30.4%, 46.6% of candidates received a poor fail

This question was anticipated to be difficult for the candidates and the pass and poor fail rates reflect this expectation. The subject matter is topical and an important consideration in the management of critically ill patients. Many candidates had no idea that the definition excluded pre-existing pathology, and that the weakness was symmetrical with cranial nerves sparing. Few candidates had knowledge of the use of nerve conduction studies and even fewer mentioned the MRC scale of scoring muscle power. The importance of preparing detailed notes on mandatory units of training when revising for the Final FRCA is exemplified by this question.

Question 5 TURP Syndrome
Pass Rate 84.5%, 4.3% of candidates received a poor fail

Overall this question was answered very well and was only a moderate discriminator between candidates. However weaker candidates did not mention CNS features and many had not read the question thoroughly and ignored the information that the patient had received neuraxial anaesthesia. Very few candidates mentioned repeated measurements of sodium and osmolality. This clinical problem is an old chestnut which all trainees should be able to manage safely and effectively.

Question 6 Obstetric preoperative discussion
Pass Rate 44.6%, 22.5% of candidates received a poor fail

This question was poorly attempted by many candidates. Examiners reported that answers reflected a lack of knowledge or inaccurate reading of the question. Many candidates described anaesthesia for a Jehovah's Witness patient with placenta praevia and fibroid uterus rather than addressing pre-operative discussions as was asked. Candidates omitted mention of important peri-operative risks such as haemorrhage, hysterectomy and other significant morbidity and mortality. Some candidates demonstrated a worrying lack of knowledge of cell salvage and in particular the disadvantages of this technique.

Question 7 Hip revision surgery
Pass Rate 46.8%, 17.7% of candidates received a poor fail

Examiners felt that this question should have proved relatively easy so the pass and poor fail rates are surprising. Inexperience probably accounts for these results. Strong candidates considered issues such as anticipated blood loss and analgesia. Weak candidates focused on infection control issues and ignored the information that the patient had been treated. This question had a very strong correlation with overall candidate scores.

Question 8 Heparin for bypass surgery
Pass Rate 61.5%, 17.2% of candidates received a poor fail

This question proved straightforward to candidates who had rotated through a cardiac unit or had read a textbook on cardiothoracic anaesthesia. Many weak candidates neither had knowledge of the intraoperative dosing of heparin for bypass surgery nor aspects of appropriate monitoring. Again, inexperience was the predominating factor in success or failure in this item.

Question 9 Phantom limb pain
Pass Rate 53.6%, 10.0% of candidates received a poor fail

A strongly discriminatory question; weak candidates simply wrote “neuropathic pain” as the answer and did not describe what they meant by the term. The specifics of managing phantom limb pain were not addressed by failing candidates in section (d).

Question 10 Chronic liver disease
Pass Rate 54.0%, 35.8% of candidates received a poor fail

This question proved the most discriminatory question of the paper. Many candidates showed poor general knowledge of liver disease. Weak candidates were unable to associate the effects of chronic liver disease with the consequences for anaesthesia which raises concerns for safe practice. Few understood how the Child-Pugh score allowed stratification of risk.

Question 11 Secondary brain injury
Pass Rate 8.3%, 59.2% of candidates received a poor fail

The pass and poor fail rates for this question are disturbing, and this question had only moderate discriminatory power as the candidate cohort performed so poorly. Management of head injury not requiring neurosurgery is common to most intensive care units. Many candidates were unable to define secondary injury or give an appropriate time frame. Most were unaware of the pathophysiological cellular mechanisms and focused solely on the Monroe-Kelly doctrine. Overall knowledge of NICE guidelines was superficial and most candidates did not define the physiological goals for therapy in enough detail. Treatment options were too narrow in scope although the information given was usually sensible. Examiners were left with the overall impression that many candidates have little theoretical knowledge or practical experience of care of the brain injured patient.

Question 12 Electroconvulsive therapy
Pass Rate 13.3%, 54.4% of candidates received a poor fail

Performance on this question was highly variable as reflected by the pass and poor fail rates, and the item was strongly discriminatory. Examiners felt that trainees did not have adequate experience of supervised working in non-theatre locations. Few seem to be attending ECT sessions, for example many candidates did not realise suxamethonium would be given and did not appreciate that myalgia is a common side-effect. Many thought that ECT could not be conducted safely in an isolated environment. Consent and mental health issues, problems with patient communication and the likelihood of comorbidity did not feature in many scripts. Of concern was failure to understand the significance of lithium or fluoxetine therapy as patients appearing on routine theatre lists may be taking these drugs; few candidates made mention of the potentiation of relaxants or volatile anaesthetic agents by lithium.

Summary

Although the pass rate has improved from the September 2014 sitting, the results are still disappointing. The Angoff process for determining the pass and poor fail thresholds has proved robust in years past and there is no reason to assume the validity of this methodology has changed. The high overall rate of poor fails suggests a deficiency in core knowledge and clinical experience as has been commented upon in previous SAQ Chair’s reports.

Four questions from the six mandatory subjects returned high poor fail rates. It seems likely that candidates attending for the Final FRCA examination have not always rotated through these sub-specialities and may have given insufficient weight to revising the topics. It is worth repeating the advice given in previous SAQ Chair’s reports that candidates should arrange short “taster” sessions in the mandatory units of training if their direct experience of the subject is limited.

However the inclusion of the six mandatory questions cannot be the whole explanation for the low pass rate, as evidenced by the poor fail rates for non-specialist questions such as hip revision (Q7), liver disease

(Q10) and anaesthesia for ECT (Q12). The ability to apply knowledge effectively and safely in clinical practice is vitally important and it is the responsibility of Schools of Anaesthesia to fill the gaps in knowledge exposed by the examination process.

The breadth of the Final FRCA syllabus is wide and the content of the SAQ paper will reflect this diversity of subject matter. It seems likely that the sheer weight of material may lead some candidates to consider individual topics of the syllabus at too superficial a level, particularly where they have no direct experience of the subject. This leaves them unable to provide the detail required to attain a comfortable pass.

A recurrent opinion expressed by the Examiners was that many of the candidates in this cohort seemed significantly short of practical clinical experience as judged by the lack of detail, and the weighting and emphasis of their answers. It is recommended that candidates discuss their examination preparedness with their educational supervisor and/or college tutor. Candidates need to ensure that their experience to date allows them a realistic chance of passing the Final examination.

Conduct of the SAQ paper would be impossible without the continued hard work of the Board of Final FRCA Examiners and of the Examinations Department staff, and I am extremely grateful for their continued and enduring support throughout my tenure as Chair.

Dr David Mulvey
Chair, Short Answer Question Group