

Review of Final FRCA Examination 2018-2019

Dr Kevin O'Hare
Chair Final Exam

Dr Gary Lear
Vice Chair Final Exam

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Final Fellowship of the Royal College of Anaesthetists (FRCA) Examination Report

Academic year Sept 2018 – Aug 2019

Outline

The aim of this document is to provide a summary of the Final Fellowship of the Royal College of Anaesthetists' examinations undertaken during the academic year September 2018 – August 2019. Different parts of this report may be relevant to different stakeholders but by producing a single report rather than multiple separate ones, we aim to provide a balanced overview. It is hoped that the report will be of interest to the general public, candidates, examiners, examinations and other departments within the College and the General Medical Council. The purpose of this exam is to define a national minimum standard of knowledge and understanding that anaesthetists in training must possess in order to progress with their careers beyond a defined point in their training. It is taken when they begin to work with much more remote supervision so it is clear that it represents an important pillar of patient safety.

The Final examination is in two parts:

1. the written examination
2. the structured oral examination.

Each will be considered separately as they are stand-alone examinations.

Three areas will be described for each examination type:

1. outcome statistics
2. an assessment of the utility of the examination
3. a brief overview of areas where candidate performance could be improved.

The Final examination is a national test of knowledge and judgement, as laid out in the basic and intermediate level training curricula agreed with the General Medical Council. Anaesthetists in training may not progress beyond the middle of specialist training year 5 without possession of this qualification (or equivalent).

1. The Final written examination

The Final written examination consists of two parts:

- a) 90 question multiple choice question (MCQ) paper consisting of 60 five-part true/false questions and 30 single best answer questions
- b) short answer question (SAQ) paper consisting of 12 questions, all of which must be attempted.

The exam was held twice in the 2018-19 academic year (September 2018 and March 2019) in several venues across the United Kingdom. The format of the examination has not changed significantly in the last five years. The composition of the MCQ and SAQ papers are mapped against the curriculum to ensure that as full a range as possible of the curriculum is sampled. The examination is passed or failed as a whole entity with marks attained from both parts of the examination being added together.

a) Outcome statistics

Academic Year	2014-15		2015-2016		2016-2017		2017-2018		2018-2019	
Examination date	Sept 2014	March 2015	Sept 2015	March 2016	Sept 2016	March 2017	Sept 2017	March 2018	Sept 2018	March 2019
Number applicants	287	471	359	534	427	470	422	428	410	567
Withdrawals / non attendees	8	9	12	20	23	16	18	13	11	21
Attendees	279	462	347	514	404	454	404	415	399	546
Pass Rate: Number (%)	114 (41%)	193 (42%)	123 (35%)	271 (53%)	285 (70.5%)	283 (62.3%)	303 (75.0%)	283 (68.2%)	175 (43.86%)	362 (66.3%)
MCQ Internal consistency KR-20	0.79	0.80	0.80	0.77	0.77	0.66	0.81	0.82	0.88	0.71
SAQ Internal consistency Cronbach alpha	0.79	0.78	0.79	0.77	0.77	0.80	0.86	0.82	0.81	0.81

The pass rate for the Final written examination dropped significantly in September 2018 to 43.86% but recovered in March 2019(66.3%).

There is no evidence to suggest that the exam has become more or less difficult in this academic year as there have been no changes in the way the examination papers are constructed, in the sampling of questions across the curriculum or in the way the pass marks are calculated, and no significant change in the make-up of the Angoff reference group setting the pass mark. In addition, the statistical measures of internal consistency remain acceptable. However, the evidence does suggest that candidates performed better in the SBA questions in September 2018 when compared to March 2019, but answered more of the MTF questions correctly in March 2019.

b) Examination utility

The utility of any formal assessment such as an examination can be assessed in terms of its reliability, cost and accessibility.

Reliability

The Final written examination is a high stakes examination requiring good reliability. In order to achieve this, the MCQ paper is 3 hours long and consists of a large number of separate questions of varying type. The pass mark is criterion referenced and is set by a core group of examiners (the Angoff group) who use the Angoff technique to assign marks to each

question based on what the minimally competent candidate would be expected to know. Questions are reviewed where there is marked variation in the Angoff scores assigned. One standard error of measurement (SEM) is then subtracted from the sum of the scores of all questions in order to arrive at the pass mark. In addition, attempts are made to establish aspects of the reliability of the MCQ paper. The Kuder Richardson formula (KR-20) is calculated for each set of MCQ paper results. This is a measure of internal consistency (an aspect of reliability) for dichotomous data. KR-20 results for the MCQ papers in this academic year were 0.88 (September 2018) and 0.71 (March 2019). These values are satisfactory and in line with values of internal reliability of most recent MCQ papers.

Each question in the SAQ paper is marked out of a total of 20 marks by a single examiner marking against a model answer. Examiners are divided into six groups and each group is given 2 of the 12 questions to mark for all the candidates. The papers are divided up amongst the group such that each candidate has 6 examiners in total assessing separate parts of their paper. In order to provide a standardized approach all examiners marking a single pair of questions meet together to approve a model answer well in advance of the planned paper. Once candidates have sat the exam the examiners meet again and mark four specimen answer papers to ensure a standardized interpretation of the model answer. The pass mark for each individual question is set by the SAQ group but may be refined by the marking group prior to the exam sitting. The pass marks for the 12 questions are summed to give a total mark for the paper and this mark is then reduced by 1 x SEM to give the pass mark. The test of internal consistency used for this paper is the Cronbach alpha calculation (as the data is continuous rather than dichotomous). Results in the most recent examinations are shown in the table above. The values of Cronbach alpha are 0.81 for both September 2018 and March 2019 which shows excellent consistency in the skills and knowledge being tested in both exam sittings.

Cost

The examination fees are set to reflect the costs incurred and not to provide an operational surplus to the College.

Accessibility

Anaesthesia is the largest hospital specialty which means that each year there are a large number of candidates who need to take this examination in order to ensure their career progression. Adequate capacity already exists and all eligible candidates applying to take the written examination in 2018-19 were able to do so. The numbers sitting the examination have varied from 335 to 546 per sitting over the last decade. 945 candidates sat the written examination in 2018 – 2019, which is the fifth highest cohort on record.

The use of multiple examination halls across all four health jurisdictions supports ease of geographical access.

c) Areas of candidate performance where improvements could be made

This is the second year the results of the MCQ examination have been analysed to identify specific areas of the curriculum where a candidate may have a weakness. This information has been provided to candidates with the letter informing them of their marks to help them to see where their future study efforts should be concentrated.

The leads of the SAQ group produce a detailed report, freely available on the College website, describing performance at each SAQ paper sitting. Details of the pass rate for each individual question are included, and detail is provided on the answers required. Candidates who failed the examination in this academic year tended to produce poor answers in multiple different questions, and did not fail the examination because of a poor result in a single question area.

Some were let down by not reading the question correctly, not paying attention to the distribution of marks, not spending enough time on the final questions and by illegible handwriting. All of these are recurring problems and probably represent poor time management. This shows that it is very important to practice SAQs under exam conditions, which brings in the element of timing as well as assessing knowledge. In previous academic years concern has been expressed about candidate performance in questions on the mandatory units of training. The picture was mixed this year with good performance in questions on these units in September but a dip again in March. Obstetric anaesthesia continues to be an area where a large number of candidates struggle to produce good answers, perhaps because it is perceived as not needing the same amount of revision as other modules. An emerging theme is that candidates do poorly in advanced science related to clinical practice. It is important to remember that clinical science is not left behind at Primary FRCA and remains as relevant in the Final FRCA as it is in everyday practice.

Having said all of the above, the overall pass rates for the SAQ were 58.4% in September 2018 and 74.73% in March 2019 which represents a declining pass rate for exams sat in September since 2017 but an increase in pass rate for the March sittings since March 2017.

2. The Final structured oral examination

Candidates may only take the Final structured oral examination (SOE) once they have been successful at the Final written examination. In the academic year 2018-19, the oral examination consisted of two parts:

- a) SOE 1 (clinical anaesthesia with linked applied clinical science) consisting of 4 clinical short cases with linked applied clinical science. This SOE is in two parts, A and B, taken consecutively, with candidates moving exam floors to sit both parts. Each part is 26 minutes in duration, comprising of two clinical short cases with linked clinical science questions with 13 minutes devoted to each pair of questions.
- b) SOE 2 (clinical anaesthesia) consisting of a two section clinical long case followed by two stand-alone clinical short cases taken in one sitting. This SOE is 36 minutes in duration, comprising of 10 minutes to view clinical material, 13 minutes devoted to a two section clinical long case and 13 minutes devoted to two questions on clinical anaesthesia unrelated to the clinical long case.

Although all questions are structured, the face to face nature of the examination allows exploration not only of knowledge, but also of the understanding and application of that knowledge. The examination is held twice per year approximately two months after the written examination to allow smooth progression through both parts of the Final examination.

a) Outcome statistics

Academic Year	2014-15		2015-2016		2016-2017		2017-2018		2018-2019	
	Examination Date	Dec 2014	June 2015	Dec 2015	June 2016	Dec 2016	June 2017	Dec 2017	June 2018	Dec 2018
Candidates attending	243	267	214	319	374	389	455	411	315	413
Pass rate Number (%)	157 (65%)	170 (64%)	142 (66%)	225 (71%)	253 (67.6%)	246 (63.2%)	294 (64.6%)	290 (70.6%)	240 (76.19%)	278 (67.31%)

A total of 728 candidates sat the Final SOE in 2018-2019. Which was the third largest number of candidates seen in the last 5 years, with the largest cohort being 866 in 2017-18. The average pass rate for the academic year was 71.75%, which is slightly higher than the average pass rates in the years since the new exam format was put in place.

b) Examination utility

It is important to ensure that the SOEs are a reliable and valid test of knowledge and understanding of the intermediate level training curriculum. The questions are constructed and reviewed by the SOE group and answer guidance is given. Marks given on the day are a matter of independent professional judgement by the 2 examiners conducting the SOE. However, during the academic year 76 individuals observed the SOEs, the majority being consultants in active clinical practice from across the UK. All were asked to provide written feedback on the content and conduct of the examinations they observed.

During this year that there was a real sense of consistency of marking by examiners, regardless of examining style, and overall these independent observers regarded the assessment as being valid and relevant.

All questions used in the SOEs are held in a computerized bank. Most have been used on a number of occasions - with any individual candidate being exposed to at most one new question. The SOE examination matrix is put together to provide a paper of approximately equal difficulty across the different days in an examination week, and also across different sittings of the examination.

10 new examiners joined the board of Final examiners at the start of the academic year, replacing a number of colleagues relinquishing their examining role at the end of their term of office. A total of 75 examiners make up the Final examiner board. All had at least 2 years-experience of examining for the Primary FRCA exam. The pairing of new examiners with experienced colleagues allows rapid assimilation to the professional standard expected. Rigorous audit of examiner performance identified no major cause for concern and feedback was given after audit was carried out to highlight areas of good performance and to show examiners where they might make improvements. On-going audit of all examiners, but especially examiners new to the Final exam, takes place during the examination week; this is performed by senior examiners and the audit is recorded, discussed with the individual examiners and reviewed by the Final Examinations Review Group. In addition, all examiners who were new to the Final exam were formally appraised by senior office holders at the end of the examining week. A formal appraisal is also given to all examiners who are in their 7th year of examining. A benchmarking exercise for examiners was carried out before the start of the first day to remind them of the standard required. It is our view that we therefore have evidence that the vast majority of examiners function appropriately in their role and that existing quality assurance processes allow us to identify and deal with any problems.

Trends in pass rates for the SOE by registered characteristics are the same as for the written examinations with higher pass rates for females, UK medical graduates, those employed in training posts, Primary FRCA holders and non BME candidates.

Cost and accessibility

The fees for the Final SOE examination are set with the intention of covering costs but not providing an income for the College. All eligible candidates wishing to take this examination were accommodated during the two examination weeks. There were enough examiners to facilitate examining, resource development, audit and appraisal within the exam week.

c) Areas of candidate performance where improvements could be made

Some examiners and visitors have expressed a modicum of concern regarding the apparent clinical inexperience of some of the candidates taking the Final FRCA examination. In answering questions which form core elements of the intermediate level training curriculum these candidates appear to have theoretical (book) knowledge without practical experience of the clinical situations in either a supervised or unsupervised capacity. This is clearly unsatisfactory and it is partly for this reason that the block on progression in training without possession of the Final FRCA has been put back to halfway through year 5. It is hoped that candidates will feel less pressure to sit the exam too early in training and to attempt to gain a sufficiently broad experience in all aspects of anaesthesia before sitting the SOE examination. However, the maintenance of a consistent pass rate in the SOEs suggests that the overall ability of candidates proceeding to sit the SOE is unchanged from previous years.

Summary

In the 2018 – 2019 academic year, the pass rate in September 2018 decreased from the previous exam sitting by 24.34% for the written component, but then rose again on in the next sitting by 22.44%. This resulted in an increase number of candidates sitting the structured oral examination in June 2019 as opposed to December 2018. Surprisingly the pass rate was higher in December 2018; with approximately three quarters of candidates being successful in obtaining the Diploma of Fellow of the Royal College of Anaesthetists.

It is important to remember that one of the prime roles of postgraduate examinations is to maintain standards in healthcare. Possession of the FRCA diploma permits trainees to work with reduced levels of clinical supervision. It is vital therefore that, in order to protect those requiring the services of an anaesthetist in the UK and further afield, the standard of knowledge required to pass the FRCA examination is not reduced and the rigorous process of exam and examiner quality control is not compromised. For these reasons, amongst others, it is important to recognize the efforts of our fellow examiners, many of whom are finding it increasingly difficult to get time away from work to perform their examination duties.

Finally, we wish to acknowledge the hard work of the staff in the examinations department of the College without whom the Final FRCA examination would not be the smooth and efficient process that it is.

