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FROM THE EXAMINATIONS DEPARTMENT



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Public Report on the Part 2 FRCOphth Examination September/November 2009

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Confidential Report on the Part 2 FRCOphth examination

The written papers of the third sitting of the Part 2 FRCOphth examination took place on 7 September 2009 at the London Welsh Association.

1. Candidates

16 candidates presented themselves for the examination.

The written papers

The written papers consisted of a two hour, 90 question single best answer from 4 MCQ paper and a 45 stem, 90 question EMQ paper lasting three hours.

Candidates must pass the written papers to be allowed to sit the clinical part of the examination. To pass the written part of the examination candidates must:

- Obtain a total score from the combined papers that equals or exceeds the combined marks from the Ebel standard setting process minus 1 SEM (which is the lower 66% confidence interval for the pass mark).
- Obtain a mark in each paper that exceed or equals the pass mark minus 2 SEM (lower 95% confidence interval)

2. The MCQ paper

Reliability (KR20):	0.766
Standard error of measurement:	3.98
1. Pass mark derived from standard setting:	58/90
2. Adjusted pass mark (- 1 SEM)*	54/90
3. Adjusted pass mark (- 2 SEM)*	50/90

Table MCQ 1: Distribution of marks

Score	Distribution
36-40	1
41-45	1
46-50	1111
51-55	111
56-60	11
61-65	1111
66-70	1

*The adjusted pass marks provide the lower 66% and 95% confidence interval for the pass standard agreed using the Ebel method (after the results are known and the reliability and hence the standard error measurement can be calculated).

2a) Blueprint

Table MCQ 2

The subjects that were assessed in the MCQ paper are summarised below and compared to the previous two papers:

		9/09	2/09	9/08
Basic science	Anatomy & embryology	3	3	2
	Microbiology	4	4	3
	Optics	5	2	6
	Genetics	3	2	3
	Pathology	4	6	8
	Physiology	0	0	2
Clinical ophthalmology	Cataract	3	3	1
	Neurology & pupils	5	3	8
	Glaucoma	2	2	2
	Strabismus	2	5	2
	Paediatrics	4	3	1
	Vitreo-retinal	2	4	2
	Medical retina & uveitis	4	6	6
	Oculoplastics and orbit	3	1	2
	Cornea	2	3	3
	Management & therapeutics	Pharmacology & therapeutics	10	12
Investigations	Ophthalmic & Neuro-imaging	16	14	14
	Orthoptics	4	3	3
Miscellaneous	Statistics and research	5	4	7
	Medicolegal	1	3	3
	Health economics	1	1	1
	Ethics	0	0	1
	General medicine	2	3	1
	Guidelines	5	3	2
Total		90	90	90

2c) Table MCQ 3: Analysis of questions

	Difficult (<30% correct)	Moderate (31-70% correct)	Easy (>70% correct)	Total
Negative discrimination	3	6	3	12
Poor discrimination (0-0.19)	5	8	18	31
Good discrimination (0.2-0.5)	3	16	12	31
Excellent discrimination (>0.5)	2	12	2	16
Total	13	42	35	90
Comparison to Ebel	16	33	41	

2b) Standard setting for MCQ paper

The examiners agreed the pass mark using the Ebel technique.

Table MCQ 4: Classification of the questions:

	Difficult	Moderate	Easy	
Essential	1	7	26	34
Important	6	22	13	41
Supplementary	9	4	2	15
Total	16	33	41	90

Table MCQ 5: Percentage correct by borderline candidates

	Difficult	Moderate	Easy
Essential	0.5	0.7	0.85
Important	0.4	0.6	0.7
Supplementary	0.3	0.45	0.65

Table MCQ 6: Weighted score

	Difficult	Moderate	Easy	
Essential	0.5	4.9	22.1	27.5
Important	2.4	13.2	9.1	24.7
Supplementary	2.7	1.8	1.3	5.8
Total	5.6	19.9	32.5	58

Unadjusted MCQ pass mark: 58/90 or 64%

Adjusted final MCQ pass mark -1SEM: 54/90 or 60%

3. The EMQ paper

Reliability (KR20):	0.83
Standard error of measurement:	3.89
Pass mark derived from standard setting:	60/90
Adjusted pass mark (- 1 SEM)	56/90
Adjusted pass mark (- 2 SEM)	52/90

Table EMQ 1: Distribution of marks

Score	Distribution
26-30	
31-35	1
36-40	11
41-45	11
46-50	11
51-55	111
56-60	111
61-65	11

The adjusted pass marks provide the lower 66% and 95% confidence interval for the pass standard agreed using the Ebel method (after the results are known and the reliability and hence the standard error measurement can be calculated).

3a) Blueprint

Table EMQ 2:

The subjects that were assessed in the EMQ paper are summarised below with comparisons to the last two papers

		09/09	02/09	09/08
Clinical ophthalmology	Uveitis	4	4	4
	Paediatrics	4	2	4
	Vitreo-retinal	2	4	4
	Medical retina/oncology	14	10	8
	Strabismus	4	4	6
	Oculoplastics and orbit	8	4	4
	Cornea/external eye	6	7	4
	Trauma	2	2	2
	Cataract/lens	2	4	2
	Glaucoma	6	4	6
Neurology/Medicine	Neurology/neuro-ophthalmology	12	13	12
	Medicine	2	4	10
Basic sciences	Pathology/genetics	8	6	4
	Optics/refraction	2	2	0
Pharmacology/Therapeutics	Pharmacology	8	8	8
Investigations	Ophthalmic/ Neuro-imaging	0	6	6
Miscellaneous	Statistics and epidemiology	0	2	4
	Research/management	6	4	2
Total		90	90	90

Table EMQ 3: Analysis of questions

	Difficult (<30% correct)	Moderate (30-70% correct)	Easy (>70% correct)	Total
Negative discrimination	2	4	2	8
Poor discrimination (0-0.19)	12	10	5	27
Good discrimination (0.2-0.5)	4	15	16	35
Excellent discrimination (>0.5)	1	14	5	20
Total	19	43	28	90
Comparison to Ebel	10	39	41	

The examiners overestimated how many of the questions that the candidates would find easy, and underestimated the number of difficult questions.

3b) Standard setting for EMQ paper

The examiners agreed the pass mark using the Ebel technique.

Table EMQ 4: Classification of the questions

	Difficult	Moderate	Easy	Total
Essential	0	16	30	46
Important	6	16	7	29
Supplementary	4	7	4	15
Total	10	39	41	90

Table EMQ 5: Percentage correct by borderline candidates

	Difficult	Moderate	Easy
Essential	0.5	0.65	0.8
Important	0.45	0.6	0.75
Supplementary	0.35	0.5	0.65

Table EMQ 6: Weighted score

	Difficult	Moderate	Easy	Total
Essential	0	10.4	24	34.4
Important	2.7	9.6	5.25	17.55
Supplementary	1.4	3.5	2.6	7.5
Total	4.1	23.5	31.85	59.45

Unadjusted EMQ paper pass mark: 60/90 or 66%

Adjusted final EMQ paper pass mark -1SEM: 56/90 or 62%

4. Overall results from the written papers

Distribution of marks:

61-70	
71-80	11
81-90	11
91-100	111
101-110	1111
111-120	1
121-130	1111
131-140	

4a) Candidates who were invited to attend the clinical examinations

Six candidates were invited to attend the clinical examinations (Structured Viva and OSCE).

This represents a pass rate on the written papers of 6/16 or 38%

5. The Structured Vivas

There were five Structured Vivas, which were held at the Field House Postgraduate Centre at Bradford Royal Infirmary on Monday 9 November 2009. The communication skills OSCE was conducted as one of the viva stations, making six stations in all. Each viva lasted 10 minutes. The stations were:

- Station 1.** Patient investigations and data interpretation
Temporal artery biopsy
- Station 2.** Patient management
Aqueous misdirection in glaucoma
- Station 3.** Health promotion and disease prevention.
Risk factors for central retinal vein occlusion
(Image of CRVO provided)
- Station 4.** Attitudes, ethics and responsibilities.
Paediatric non-accidental injury
Delegating consent
- Station 5.** Role: Audit, research and evidence based practice.
Early treatment diabetic retinopathy study
(Image of diabetic retinopathy provided)

The vivas were held in one well-sized room and screens were used to separate the stations. The examination was conducted in one round with six candidates in each round. Examiners were happy with the facilities.

Each station began with a clinical scenario, and subsequent discussion was based upon, but not limited to, the clinical diagnosis suggested by the scenario.

Structured Viva Results:

Maximum mark (5 stations, 10 examiners, 3 criteria scored 0-3):	90
Unadjusted pass mark (using borderline candidate method):	53
Mean score:	66.8
Median score:	64
Range:	51-85
Reliability: (Cronbach alpha)	0.844
SEM:	5

Unadjusted Pass mark (using borderline candidate method)	53 (59%)
Adjusted final pass mark (+ 1 SEM)	58 (64%)

*One candidate was identified with a red flag.

The adjusted pass mark (+1SEM) was chosen as the safer upper 66% confidence interval of the borderline candidate standard (identified from the results based upon the reliability of the examination)

Correlation between examiners' marks at each station

Station 1	Station 2	Station 3	Station 4	Station 5
PI	PM	HPDP	AER	Role
0.980	0.713	0.920	0.951	0.946

Correlation between examiners' global judgements at each station

Station 1	Station 2	Station 3	Station 4	Station 5
PI	PM	HPDP	AER	Role
1.000	0.878	0.655	0.926	0.894

Correlation between viva stations

		Station 2	Station 3	Station 4	Station 5
		PM	HPDP	AER	Role
Station 1	PI	0.876	0.004	-0.250	-0.004
Station 2	PM		0.070	-0.191	-0.036
Station 3	HPDP			0.788	0.766
Station 4	AER				0.871

5b) Standard setting for the Structured Vivas:

	1		2		3		4		5		Total
Number of borderline candidates	0	0	2	1	1	3	1	1	3	2	14
Median borderline candidate mark	6	5.5	5	7	5	5	5	5	4	5	53

6. The OSCE

There were seven OSCE stations in all. Six were held in the Eye Outpatients Department at Bradford Royal Infirmary on Tuesday 10 November 2009. The communication OSCE was conducted with the vivas. Four of the OSCE stations lasted 15 minutes. The medicine and neurology stations ran as a double station and lasted 30 minutes. The communication OSCE lasted 10 minutes. There were two examiners at each station. In the communication OSCE, one examiner was a trained lay assessor. Patients with the following clinical problems were made available by the host department for the examiners:

6a) Stations

Station 1: Cataract and anterior segment (3 patients)

Map-dot-fingerprint dystrophy
Interstitial keratitis
Marfan's syndrome with lens subluxation
Iris coloboma
Pigment dispersion syndrome
Crystalline keratopathy

Station 2: Glaucoma and eyelid (3 patients)

Congenital glaucoma
Pseudo-exfoliation with subluxed IOL
Ptosis with proptosis and aberrant reinnervation
Irido-corneal endothelial syndrome

Station 3: Posterior segment (3 patients)

Branch retinal vein occlusion
Pan retinal photocoagulation for diabetic retinopathy
Foveal telangiectasia with crystalline retinal deposits
Macular dystrophy
Diabetic retinopathy with PRP

Station 4: Strabismus and orbit (2 patients)

Duane's syndrome
Old orbital trauma / enophthalmos
Accommodative esotropia and inferior oblique overaction

Stations 5 and 6: Medicine and neurology (4 patients)

Chronic progressive external ophthalmoplegia
Optic disc drusen
Homonymous hemianopia secondary to occipital infarction
Type I neurofibromatosis
Optic nerve hypoplasia & nystagmus
Marfan's syndrome
CVA and quadrantanopia
Refsums disease with retinal dystrophy

Station 7: Communication (1 patient actor)

Patient with optic neuritis who has researched on internet and believes she has MS.

6a) Results

Candidates examined three patients in stations 1-3, two patients in stations 4-6 and one patient in station 7. Each patient is worth a maximum of 18 marks (2 examiners x 3 marks x 3 categories). To balance the contribution to a candidate's mark from stations (apart from station 7) the marks from stations 1-3 are weighted by 0.666. The relative contribution from each station in the OSCE is thus 2,2,2,2,2,1.

Maximum mark after weighting: 234

Stations 1-3: 3 criteria scored 0-3 for 3 patients by 2 examiners x 0.666 = 108

Station 4-6: 3 criteria scored 0-3 for 2 patients by 2 examiners = 108

Station 7: 3 criteria scored 0-3 for 1 patient/actor by 2 examiners = 18

Unadjusted pass mark (using borderline candidate method): 137
 Mean score: 140
 Median score: 142
 Range: 83-195
 Reliability: 0.939
 (Cronbach alpha based upon weighted mean mark per OSCE)
 SEM: 10

Unadjusted weighted OSCE pass mark: 137 (59%)

Adjusted final OSCE pass mark +1SEM: 147 (63%)

*4 candidates were identified with a red flag.

The adjusted pass mark (+1SEM) was chosen as the safer upper 66% confidence interval of the borderline candidate standard (identified from the results based upon the reliability of the examination).

Correlation between examiners' marks at each station

Station 1	Station 2	Station 3	Station 4	Station 5/6	Station 7
Cat/AS	Glauc/lid	Posterior	Orbit/strab	Med/neurol	Comm.
0.907	0.867	0.867	0.778	0.992	0.911

Correlation between examiners' global judgements at each station

Station 1	Station 2	Station 3	Station 4	Station 5/6	Station 7
Cat/AS	Glauc/lid	Posterior	Orbit/strab	Med/neurol	Comm.
0.868	1.000	0.791	0.910	0.928	0.926

Correlation between station scores (combined marks 2 examiners)

		Station 2	Station 3	Station 4	Station 5/6	Station 7
		Glauc/lid	Posterior	Orbit/strab	Med/neuro	comm
Station 1	Cat/AS	0.696	0.849	0.935	0.655	0.591
Station 2	Glauc/lid		0.601	0.873	0.236	0.650
Station 3	Posterior			0.776	0.760	0.891
Station 4	Orbit/strab				0.596	0.611
Station 5/6	Med/neuro					0.524

6b) Standard setting for the OSCE

	total	1		2		3		4		5		6	
No. of borderline candidates	14	2	3	0	0	2	2	2	1	0	1	0	1
Median borderline candidate score	137	10	9.3	10.3	11	12.7	10.7	8.5	8	21.5	26	4.5	5

7 Overall results

Two candidates passed the examination overall. This represents a pass rate for the clinical examinations of 38%, and 13% for the whole examination. The continuing low pass rate for this examination is a slight cause for concern. However as an exit examination the standard expected of the candidates is naturally high and very few of the candidates are in specialist training in the UK. It is anticipated that the pass rate will rise in subsequent examinations.

Correlation between scores in each part of examination:

	EMQ	VIVA	OSCE
MCQ	0.535	0.516	0.601
EMQ		0.095	0.283
VIVA			0.931

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