

Examination Report

March 2016 Refraction Certificate Examination



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1. Introduction

The 17th Refraction Certificate examination in the format was held on March 2016 in Birmingham. Fifty-seven candidates presented themselves for the examination. The examination consisted of a 12 station OSCE covering a range of skills required to assess visual acuity, refractive error and the prescription of spectacles.

Examination blueprint

The Refraction Certificate (RCert) is designed to assess the following learning outcomes from the Royal College of Ophthalmologists curriculum for ophthalmic specialist training (OST):

CA2	Vision
CA7	Motility
PM1	Management plan
PM14	Spectacles
PS2	Refraction
PS21	Hand hygiene
C1	Rapport
C2	Communication
C12	Records
BCS6	Optics
BCS14	Instrument technology
AER16	Time management

Examination Structure

The examination consists of 12 OSCE stations. Each station contributes a possible 15 marks to the overall total. The stations used for the examination were:

1. Cycloplegic Retinoscopy (CR1)
2. Cycloplegic Retinoscopy (CR2)
3. Subjective Refraction Cylinder (SRC)
4. Cycloplegic Retinoscopy (CR3)
5. Cycloplegic Retinoscopy (CR4)
6. Lens Neutralisation (LN)
7. Non Cycloplegic Retinoscopy (NCR1)
8. Non Cycloplegic Retinoscopy (NCR2)
9. Visual acuity and IPD measurement (VA)
10. Subjective Refraction Sphere (SRS)
11. Binocular balance (BB)
12. Near Addition (NA)

2. Summary

This is the 10th sitting of the refraction certificate with 12 OSCE stations. The reliability of the examination is now high (Cronbach alpha 0.9) and meets the expectations of the GMC.

The Hofstee method of standard setting was used to identify the pass mark for this examination, which was 77%, which was highest pass mark to date. Previous Hofstee calculations have always been based upon a 'standard' set of parameters. Now that this method of standard setting has been approved by the GMC, the examiners provide an updated set of parameters based upon the difficulty of the examination in March.

Even with the higher pass mark, the pass rate was high at 81% with a slightly higher pass rate in OST at 83%.

3. Standard setting

Candidates must be able to accurately assess visual acuity, measure refractive error and recommend an appropriate spectacle correction to pass the RCert. The pass mark is identified using the Hofstee method:

Hofstee method (see appendix 1 for details)

After the examination, examiners were asked to review the parameters for the standard setting based upon their judgment of the difficulty of the stations. The following values were used to set the pass mark:

The cumulative fail rate as a function of the pass mark and the co-ordinates derived from the four values above were plotted on a graph. The point where a line joining the two co-ordinates intersects the cumulative function curve is used to identify the pass mark.

1. The maximum credible pass mark for the examination 80%
2. The maximum credible pass rate for the examination 90%
3. The minimum credible pass mark for the examination 65%
4. The minimum credible pass rate for the examination 60%

4. Results (table 1)

Number of candidates	57	
Maximum possible mark	180	
Mean candidate mark	145	81%
Median candidate mark	153	87%
Standard deviation	24.2	13%
Highest candidate mark	172	96%
Lowest candidate mark	60	33%
Reliability	0.9	
Standard error of measurement (SEM)	7.7	4%
Hofstee pass mark	135/180	75%
Pass rate	46	81%
Pass rate in OST	33/40	83%

Distribution of marks (table 2)

Score	Distribution	Total
<51		0
51-60	/	1
61-70	/	1
71-80	/	1
81-90		0
91-100	/	1
101-110	/	1
111-120	/	1
121-130	////	4
131-140	//////	7
141-150	////////	8
151-160	//////////	16
161-170	//////////	15
171-180	/	1
Total		

/ Candidate failed / candidate passed

Statistics for each station (table 3)

		Mean	Median	Standard deviation	Minimum	Maximum
1	CR1	12.9	15	3.7	1	15
2	CR2	12.9	15	3.7	1	15
3	SRC	11.5	14	3.8	2	15
4	CR3	12.9	14	3.2	2	15
5	CR4	12.4	14	3.2	3	15
6	LN	11.8	12	2.8	5	15
7	NCR1	12.5	14	3.4	1	15
8	NCR2	11.2	13	4.1	1	15
9	VA	12.5	13	2.3	5	15
10	SRS	11.5	12	2.7	2	15

11	BB	11.4	12	2.9	0	15
12	NA	11.4	12	2.7	3	15

The relative weights for each skill in refraction (based upon the number of stations is:

Clinical skill	Number of stations	Contribution to total marks	Median mark
Retinoscopy	6	50%	14
Subjective	3	25%	12
Other	3	25%	12

Correlation between stations (table 4)

	CR1	CR2	SRC	CR3	CR4	LN	NCR1	NCR2	VA	SRS	BB
CR1											
CR2	0.8										
SRC	0.4	0.4									
CR3	0.3	0.3	0.3								
CR4	0.2	0.2	0.2	0.7							
LN	0.5	0.4	0.3	0.2	0.1						
NCR1	0.6	0.5	0.4	0.5	0.4	0.3					
NCR2	0.5	0.4	0.3	0.2	0.3	0.3	0.7				
VA	0.5	0.4	0.1	0.1	0.0	0.4	0.2	0.2			
SRS	0.6	0.4	0.3	0.1	0.1	0.4	0.1	0.4	0.3		
BB	0.6	0.5	0.2	0.2	0.2	0.4	0.5	0.4	0	0.9	
NA	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.2	0.2

Median correlation between the cycloplegic refraction stations = 0.3

- There was good correlation between CR1 and CR2, and CR3 and CR4.
- There was moderate correlation between CR1 and CR3 and CR4

Correlation between non-cycloplegic refraction stations = 0.7

Best correlation between Binocular balance and subjective refraction of the sphere

Poorest correlation between visual acuity and binocular balance

Correlation between each station and the total score (table 5)

CR1	CR2	SRC	CR3	CR4	LN	NCR1	NCR2	VA	SRS	BB	NA
0.8	0.7	0.6	0.6	0.5	0.6	0.8	0.7	0.5	0.7	0.7	0.4

5. Breakdown of results

Breakdown of results by training (table 6)

	Failed	Passed	Total
In OST	7	33	40
Not in OST	4	13	17
Total	11	46	57

These differences are not statistically significant (0.72 Fishers exact)

Breakdown of results by deanery (table 7)

Deanery	Failed	Passed	Total
East Midlands	0	2	2
East of England	1	0	1
East of Scotland	0	0	0
KSS	0	4	4
London	0	10	10
Mersey	0	2	2
North Scotland	0	0	0
North West	0	1	1
Northern	0	2	2
Northern Ireland	0	1	1
Oxford	0	1	1
Peninsula	1	0	1
Severn	0	1	1
South East Scotland	0	0	0
Wales	1	0	1
Wessex	1	1	2
West Midlands	3	4	7
West Scotland	0	3	3
Yorkshire	0	1	1
Total	7	33	40

Breakdown of results by stage of training (table 8)

Stage (includes FTSTA)	Failed	Passed	Total
ST1	0	2	2
ST2	2	16	18
ST3	5	13	18
ST4	0	1	1
Total*	7	32	39

*Level at examination unknown for 1 candidate

Breakdown of results by number of previous attempts (table 9)

Attempts	Failed	Passed	Total
1 (First)	8	32	40
2	3	13	16
3	0	0	0
4	0	1	1
Any resit	3	14	17

Total	11	46	57
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6. Comparison to previous examinations (table 10)

Date	Candidates	Pass mark	Pass rate	Pass rate in OST	% Candidates in OST	Reliability	SEM	Hofstee pass mark
Mar 10	43	69%	47%	58%	67%	0.6	9 (9%)	68%
July 10	47	75%	53%	60%	70%	0.6	8 (8%)	72%
Nov 10	53	74%	42%	44%	68%	0.6	7 (7%)	71%
Apr 11	57	71%	35%	47%	63%	0.6	6 (6%)	67%
July 11	41	67%	66%	72%	71%	0.4	6 (6%)	71%
Nov 11	69	65%	71%	75%	70%	0.6	8 (8%)	68%
Mar 12	54	73%	54%	66%	57%	0.6	8 (8%)	72%
July 12	44	71%	59%	67%	64%	0.5	9 (9%)	71%
Dec 12*	71	69%	75%	77%	55%	0.6	11(6%)	72%
Apr 13	64	74%	61%	64%	64%	0.8	11(6%)	74%
July 13	42	72%	74%	90%	48%	0.7	10(6%)	74%
Dec 13	75	72%	67%	76%	65%	0.7	10(6%)	71%
Apr 14	56	73%	84%	89%	66%	0.6	9.5(5%)	75%
July 14	34	74%	62%	55%	65%	0.4	11 (6%)	74%
Dec 14*	63	71%	68%	77%	68%	0.6	12 (7%)	71%
Apr 15*	57	77%	65%	73%	65%	0.4	11 (7%)	77%
June 15*	33	69%	58%	n/a^	0%	0.73	10 (6%)	69%
July 15*	31	66%	58%	55%	65%	0.65	9.4(5%)	66%
Jan 16*	70	70%	60%	60%	81%	0.8	10 (6%)	70%
Mar 16*	57	77%	81%	83%	70%	0.9	7.7 (4%)	77%

* Hofstee pass mark used for these examinations

^ Examination held in Kuching

Performance of candidate by deanery for all examinations to date, where deanery is known (table 11)

Deanery	Total passes	Total candidates	Pass rate %
KSS	13	14	93
East of Scotland	8	9	89
Oxford	8	9	89
North Scotland	6	7	86
South East Scotland	13	16	81
Mersey	24	30	80
London	102	136	75
North West	24	32	75
Northern	15	20	75
Yorkshire	33	47	70
East Midlands	20	29	69
Northern Ireland	9	13	69
West Scotland	17	25	68
Wessex	14	21	67
West Midlands	37	56	66
East of England	22	34	65
Severn	13	20	65
Wales	15	28	54
Peninsula	9	28	32
Total	402	574	70

Appendix 1 Hofstee method for standard setting

Hofstee method

In advance of the examination, members of the College's Examinations Committee were asked to nominate the values for the following:

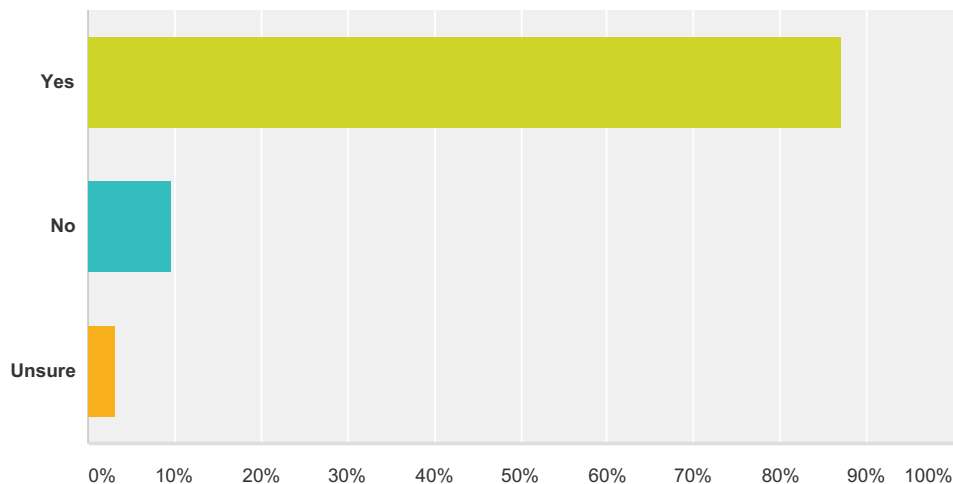
5. The maximum credible pass mark for the examination 80%
6. The maximum credible pass rate for the examination 90%
7. The minimum credible pass mark for the examination 65%
8. The minimum credible pass rate for the examination 60%

The cumulative fail rate as a function of the pass mark and the co-ordinates derived from the four values above were plotted on a graph. The point where a line joining the two co-ordinates intersects the cumulative function curve is used to identify the pass mark.

The Hofstee pass mark for this examination was 135/180 (75%).

Q1 Were you treated in a courteous manner by the examiners in this examination?

Answered: 31 Skipped: 0



Answer Choices	Responses	
Yes	87.10%	27
No	9.68%	3
Unsure	3.23%	1
Total		31

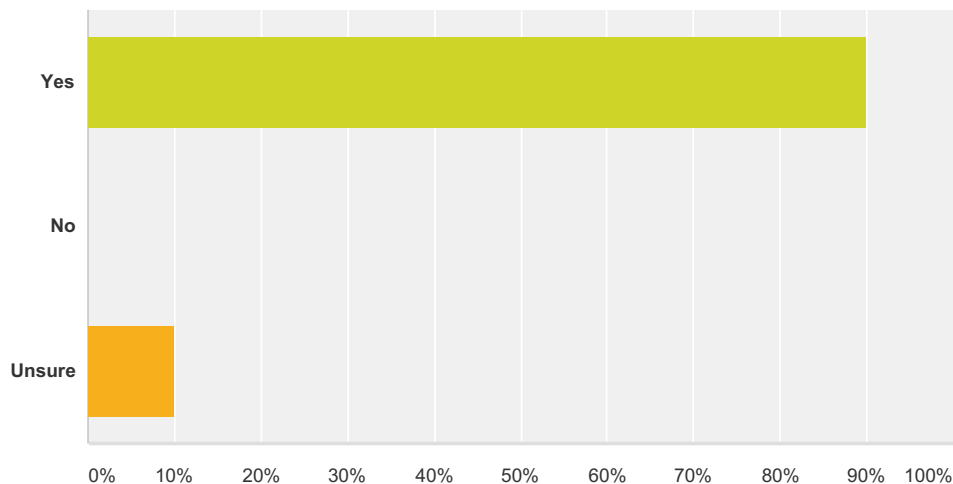
#	Comments	Date
1	Please see below	4/10/2016 12:17 AM
2	Examiners were all very kind.	4/4/2016 1:49 PM
3	This time everyone was nice and explained things very well prior to the examination starting.	3/31/2016 8:19 PM
4	For the most part, examiners were warm and kind.	3/30/2016 8:24 PM
5	One examiner (greek sounding surname) wasn't particularly helpful during the cycloplegic/focicemetry station	3/30/2016 2:55 PM
6	I felt that one of the examiners [REDACTED] acted inappropriately towards myself and the patient. During the familiarisation minutes, I was talking to the patient and explained our role in the examination, being ophthalmology trainees. I was interrupted by the examiner who impolitely stated that 'this is not an examination, it's only a quiz', inferring that this was a banal exercise that should not require any preparation nor skill. He went on to state that we are not meant to feel any time pressure even though this is a timed examination with definite emphasis on performing within strict time limits. Additionally, the patient was a young woman who had been given cyclopentolate drops, however, the cycloplegia was not complete. Once again the examiner bluntly rejected my comment on her accommodation and stated that 'he had put the drops in himself' with an inappropriate tone of voice. This obtrusive behaviour threw me off the whole station and I felt very uncomfortable during the remainder of the examination. This clearly contrasted with the rest of the examiners who were all very professional and supportive throughout the examination. Overall, I felt that the behaviour of Mr [REDACTED] significantly affected my performance and I hope that this situation is not repeated for any other trainees in the future.	3/29/2016 11:41 PM
7	The examiners were extremely courteous and went out of their way to make the candidates feel more relaxed at the exam stations.	3/29/2016 10:16 PM
8	There was one examiner that was a little harsh and mentioned failure prior to the start of a station but was not discourteous. Everyone else was patient, kind and attempted to reassure.	3/29/2016 9:39 PM
9	I found Mr [REDACTED] was generally abrasive during the instructions for the focimetry station. At one point raised his voice saying "I told you three times already..." in front of the patients sitting near by - he actually didn't explain anything "three times" as such. Not sure if this is appropriate behaviour from an examiner towards candidates, who are already under stress during this exam.	3/29/2016 7:29 PM

Refraction Certificate 22-24 March 2016 CANDIDATE FEEDBACK OSCE stations

10	Examiners were friendly and helpful Answered all queries well Was good at putting candidates at ease (as much as one can for an exam!)	3/29/2016 5:57 PM
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Q2 Were the patients you were asked to examine appropriate for the examination?

Answered: 30 Skipped: 1



Answer Choices	Responses	
Yes	90.00%	27
No	0.00%	0
Unsure	10.00%	3
Total		30

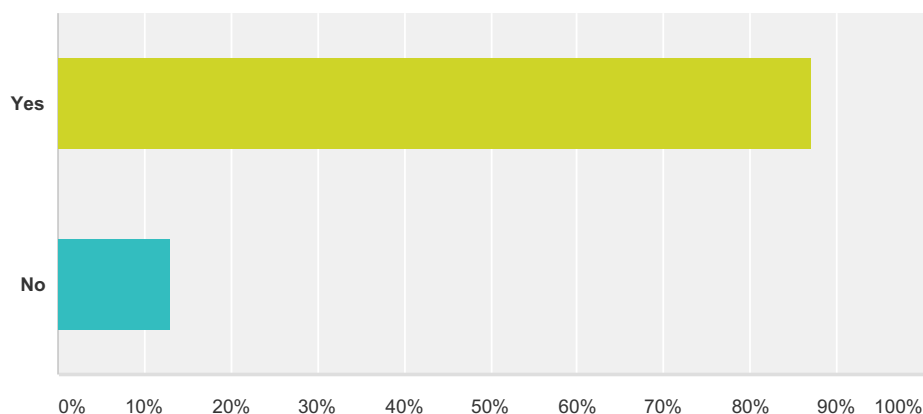
#	Comments	Date
1	Most patients were young adults who were able to respond fast to different cues during examination, except for obviously the near addition station patient. One patient examined during cycloplegic retinoscopy station was middle-aged.	4/10/2016 3:29 PM
2	But one of the cycloplegic retinoscopy stations seemed the cycloplegia may have been wearing off. Was the last set of stations of the last exam session on last day. Completed retinoscopy as per college guidelines with subject looking at retinoscope light. After writing down the results had a bit of time spare so rechecked retinoscopy with far fixation and seemed to get difference of 0.75 Dioptres between near and far fixation. Pointed this out to examiner but no time to alter result. Does anyone check subjects for residual accommodation at start and end of exam on cyclo stations or is this taken into account in marking results?	4/3/2016 10:34 PM
3	Patients gave clear answers during subjective refraction which helped with the speed of examination.	4/2/2016 2:20 PM
4	On the whole yes. Better than last time. I am wondering however if the cycloplegic refraction was wearing off towards the end of the day as I got changing refractions? Do they re-instill the drops? Is this taken into account on the mark schemes if candidates are finding similar results?	3/31/2016 8:19 PM
5	Positive patients. 3rd day of OSCE	3/30/2016 8:24 PM
6	On the whole they were good. Some gave conflicting answers, which wasn't great!	3/30/2016 2:55 PM
7	but a female patient in the station of : trial frame fitting and visual acuity measurement ... i could hardly recognize the letters she pronounced	3/29/2016 11:46 PM
8	but a female patient in the station of : visual acuity measurement and trial frame fitting ... i could hardly recognize the letters that she pronounced	3/29/2016 11:44 PM
9	There was a good selection of refractive errors and all the patients were very positive, interested and kind.	3/29/2016 11:41 PM
10	The cylinder refinement patient was difficult	3/29/2016 9:39 PM
11	while some of the simulated patients were waiting (when not required for the station) they were chatting very loudly which was rather disruptive	3/29/2016 7:50 PM

Refraction Certificate 22-24 March 2016 CANDIDATE FEEDBACK OSCE stations

12	One patient was looking at her mobile phone while during the retinoscopy stations, which was a bit disconcerting. Another was unable to follow the instruction, "read the lowest line you can see clearly on the Snellen chart" and kept giving different answers. Speaking to other candidates after the exam, it was also felt that it would have saved time if female patients could possibly have their hair tied back as this interfered a bit with the trial frame fitting.	3/29/2016 7:29 PM
13	The majority of patients were excellent. However one was too slow in her responses and also too vague in her answers to be able to do a cylinder refinement properly in a 5 minute window. One patient had a split reflex on cyclo ret which may or may not be a suitable candidate for the refraction exam.	3/29/2016 5:57 PM

Q3 Was the OSCE well organised overall?

Answered: 31 Skipped: 0



Answer Choices	Responses
Yes	87.10% 27
No	12.90% 4
Total	31

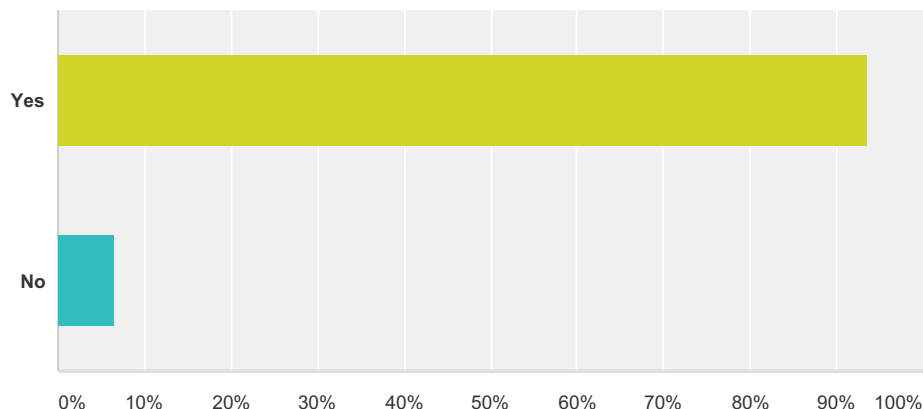
#	Comments	Date
1	Please see below	4/10/2016 12:17 AM
2	Overall very efficient.	4/3/2016 10:34 PM
3	Very well organised. Appropriate time between stations to read the scenario and orientate yourself to the examination room and equipment.	4/2/2016 2:20 PM
4	I was in the first group examined. The computer system for the charts did not work properly in most of the rooms. The examiners did not know how they worked, so I was forced to use different charts than preferred in some stations. I understand this was rectified for subsequent groups. Between the stations there were long periods of waiting while examiners marked the papers. Perhaps the examiners could have separate mark sheets or mark at the end of the OSCE if possible? In my final station, the computer system broke and I had to wait for an extended period while it was fixed and the other candidates continued the exam. I found this disruptive to the flow of my exam and detrimental to my performance in this station. In some stations, there were lenses missing or in the wrong slots. This made it even more difficult and frustrating when under time pressure.	4/1/2016 9:42 PM
5	Started 20 minutes late. 3rd day, and ran otherwise well.	3/30/2016 8:24 PM
6	One of the retinoscopes stopped working in the middle of the station. In other rooms, retinoscope light was so weak. In one of the stations the lenses were misplaced, negative lens in the positive side.	3/30/2016 11:47 AM
7	I was in the first morning group on the first day. The examination started late and there were longer breaks in-between stations than stated, meaning that the whole examination took close to 2 hours with little information given as to why things were running slow. In addition, one of the computer driven vision charts broke down during the examination which delayed things further while it was being investigated and eventually abandoned. These things could perhaps not be predicted but improved communication would have been appreciated. Lastly, the lenses were disorganised in three out of four stations and not always placed in the correct slots. This meant that a smooth refraction sometimes became difficult and that mistakes could be made because for instance a +1.25 lens was placed in the +1.75 compartment.	3/29/2016 11:41 PM
8	However, there was some difficulty switching my target screen and no time was allotted to compensate for time lost. Therefore i think the appropriate review of the va charts and systems should be explained to all candidates before the osce starts. Even though you can ask your examiner before the station starts to help you to familiarize, you may not know what you need to ask before the station starts until the problem crops up. Not all examiners gave you the same run through of the equipment.	3/29/2016 9:39 PM
9	It might be a suggestion to have lens sets, that are actually colour coded as to concave (red) or convex lenses (green/black) as is found in most eye units.	3/29/2016 7:29 PM
10	Well organised	3/29/2016 5:57 PM

Refraction Certificate 22-24 March 2016 CANDIDATE FEEDBACK OSCE stations

11	One criticism was that on one station the lens set was incomplete. The stations can be tight for time so it was frustrating having to make lenses of of multiple others when missing.	3/29/2016 5:22 PM
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Q4 Were you given clear instructions about the OSCE?

Answered: 31 Skipped: 0

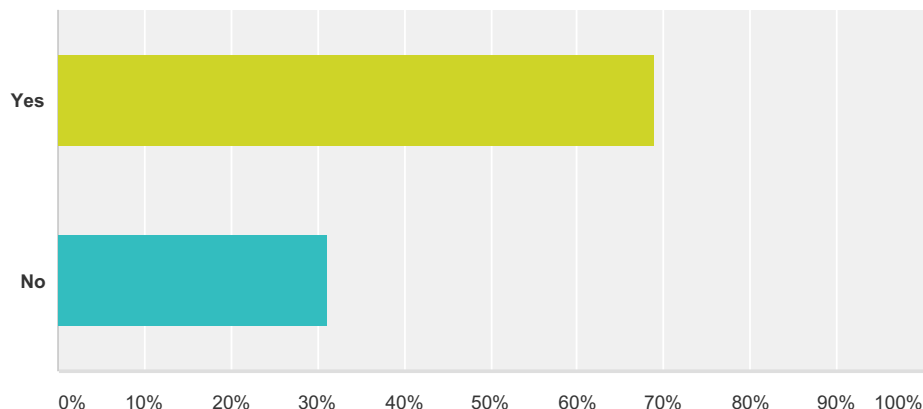


Answer Choices	Responses
Yes	93.55% 29
No	6.45% 2
Total	31

#	Comments	Date
1	Answer sheets available prior to the examination were self-explanatory.	4/10/2016 3:29 PM
2	Overall yes, but please see below	4/10/2016 12:17 AM
3	Examiners were slightly inconsistent about what you were allowed to prepare in your familiarisation period (e.g. putting lenses into the trial frame)	4/1/2016 9:42 PM
4	The instructions that are available on the royal college website are extensive and very good. However, it was unclear how much you could speak to the patients during familiarisation or whether one could put lenses in the trial frames prior to the time starting.	3/29/2016 11:41 PM
5	There seemed to be confusion amongst some of the examiners about whether a trial frame could be put on a patient before a station began. Some allowed whereas others didn't. Surely for a college exam the conditions should be standardised and not dependent on the opinion of an individual examiner.	3/29/2016 5:57 PM

Q5 Did you feel that the OSCE was a fair assessment of your knowledge?

Answered: 29 Skipped: 2

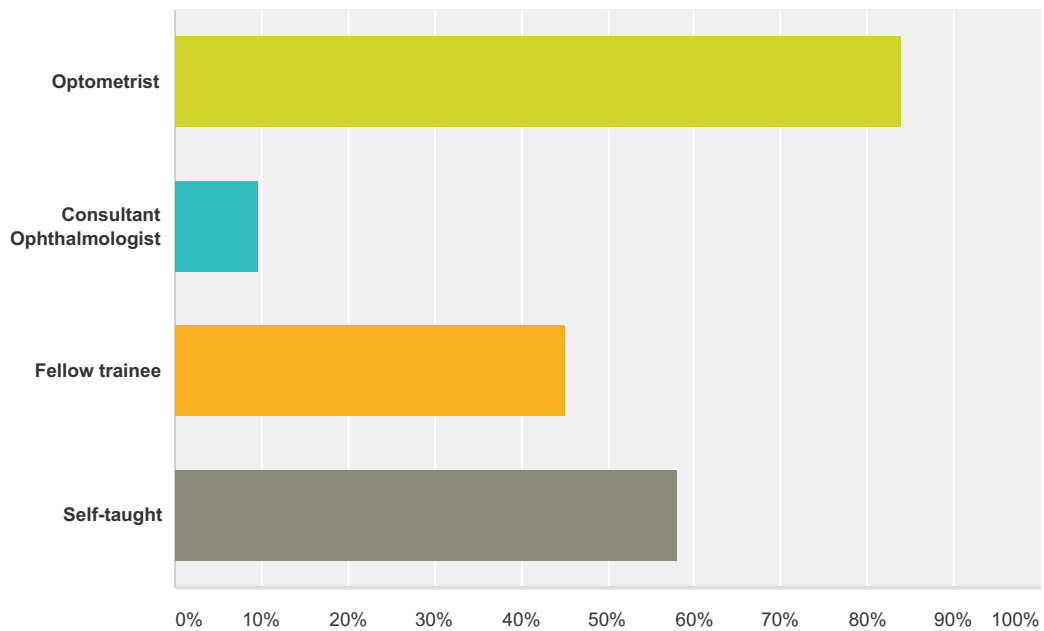


Answer Choices	Responses
Yes	68.97% 20
No	31.03% 9
Total	29

#	Comments	Date
1	Yes and No. Please see below (9).	4/10/2016 3:29 PM
2	Time is not enough in all the stations. Silly mistakes are likely to happen as you are not familiarised with the room and equipment.	4/5/2016 8:58 PM
3	I felt confident with refraction however there were several issues at the venue which made me perform more poorly than normal / wasted time. Mainly: the wheely chairs were on carpet and couldn't slide across the floor, therefore I had to stand up to do a lot of the refractions or stand up to get lenses from the lens box. Also alot of the lenses were difficult to read the power and axis of cyl on. You could only see the axis if held up to the light and it was impossible to see once you held up to the patient. This wasted significant time. I think a hard floor so the chair can wheel smoothly and better lenses would have led to a much better performance and more accurately demonstrated my skills/ knowledge.	4/4/2016 1:49 PM
4	To some extent. However, I think passing the exam relies on good exam technique as much as being a competent refractionist.	4/2/2016 2:20 PM
5	Aside from the complications experienced that I mentioned above, I think the content of the OSCE was appropriate	4/1/2016 9:42 PM
6	The best way to assess if someone can refract is to allow on to do a whole refraction, rather than break it in parts and make it un natural. We will never do this in real life, so why in an exam?	4/1/2016 12:21 PM
7	I think you should have to carry a full refraction from start to finish as opposed to breaking it down. Examining candidates on doing a "rough" ret in 10 minutes for both eyes isn't really that helpful.	3/31/2016 8:19 PM
8	but what about adding a long case beside the OSCE	3/29/2016 11:46 PM
9	but what about adding a long case beside the OSCE	3/29/2016 11:44 PM
10	I felt that the environment and time pressure did not adequately assess my knowledge or skills.	3/29/2016 11:41 PM
11	very subjective	3/29/2016 7:50 PM
12	I am not sure if retinoscopy can adequately be performed in 10 minutes in real life. I am not sure if it is possible to incorporate everything into the 5 minute stations personally.	3/29/2016 7:29 PM
13	Exam doesn't test knowledge. It tests the ability to do a practical skill in an limited time period.	3/29/2016 5:57 PM

Q6 Who helped you to develop competence in refraction? (Please select the answer as appropriate)

Answered: 31 Skipped: 0



Answer Choices	Responses
Optometrist	83.87% 26
Consultant Ophthalmologist	9.68% 3
Fellow trainee	45.16% 14
Self-taught	58.06% 18
Total Respondents: 31	

#	Other (please specify)	Date
1	£1000 (excluding travel and accommodation expenses) spent on courses	4/10/2016 12:17 AM
2	Course. Please note it is extremely difficult to get hospital/community optometrists to help you. It is even more difficult to find people to refract in the local eye unit.	3/31/2016 8:19 PM
3	Retired consultant ophthalmologist	3/30/2016 8:24 PM

Q7 Approximately how many complete refractions (retinoscopy + subjective modification) did you carry out in your preparation for the examination?

Answered: 31 Skipped: 0

#	Responses	Date
1	~30-50	4/10/2016 3:29 PM
2	At least 60	4/10/2016 12:17 AM
3	40	4/5/2016 10:59 PM
4	Between 50-80	4/5/2016 8:58 PM
5	100	4/4/2016 1:49 PM
6	100	4/3/2016 10:34 PM
7	100	4/2/2016 3:59 PM
8	Approximately 40 full refractions and 30 additional rets.	4/2/2016 2:20 PM
9	100+	4/1/2016 9:42 PM
10	>200	4/1/2016 12:21 PM
11	50 - 60	4/1/2016 11:41 AM
12	8	3/31/2016 10:06 PM
13	70 +	3/31/2016 8:19 PM
14	80	3/31/2016 6:49 AM
15	40	3/30/2016 8:24 PM
16	~80	3/30/2016 5:04 PM
17	80	3/30/2016 2:55 PM
18	60	3/30/2016 2:55 PM
19	20	3/30/2016 11:47 AM
20	150	3/29/2016 11:46 PM
21	150	3/29/2016 11:44 PM
22	80	3/29/2016 11:41 PM
23	Around twenty five refractions	3/29/2016 10:16 PM
24	80	3/29/2016 9:39 PM
25	50	3/29/2016 8:25 PM
26	70 - 90	3/29/2016 7:50 PM
27	50	3/29/2016 7:29 PM
28	70	3/29/2016 6:55 PM
29	50	3/29/2016 6:12 PM
30	About 50	3/29/2016 5:57 PM
31	100	3/29/2016 5:22 PM

Q8 Please provide any other advice that you would like to share with future candidates.

Answered: 22 Skipped: 9

#	Responses	Date
1	Please see below.	4/10/2016 3:29 PM
2	Bring all your own equipment. Be aware that the exam can be very subjective.	4/10/2016 12:17 AM
3	The RCOphth Instructions to Candidates is very important to read. Be prepared to use different types of lenses (e.g. the lenses with silver borders rather than the traditional red/black bordered lenses).	4/5/2016 10:59 PM
4	If candidate agrees give them a warning of time halfway of each station.	4/5/2016 8:58 PM
5	Practice timings.	4/4/2016 1:49 PM
6	Practise many refractions and it will be easier. Keep focused on one type of technique and perfect that method.	4/2/2016 3:59 PM
7	Practice cyclo rets as much as possible - can be challenging to find the time to ret dilated adult patients in clinics, but in the exam you're expected to do 2 cyclo rets vs 1 non-cyclo.	4/2/2016 2:20 PM
8	Attend an optometry clinic where possible as this was where I learnt the most about refraction.	4/1/2016 9:42 PM
9	practice, get some other student to plan your preparation, don't delay on doing OSCE style preparation (rather than whole refractions), get to the venue well before start time	4/1/2016 12:21 PM
10	Dont waste time refining 0.25 during retinoscopy.. or you will end up falling short on time for writing the answers.. thats what happened to me..	3/31/2016 10:06 PM
11	Bring all your own equipment!	3/31/2016 8:19 PM
12	Practice. Time yourself for stations being aware that you do not perform the full refraction. Familiarise yourself with the format of the exam. Be aware that the equipment used will differ from what you are used to, even if only slightly.	3/30/2016 8:24 PM
13	Practice, practice, practice!	3/30/2016 2:55 PM
14	Practice under time pressure right from the beginning	3/30/2016 11:47 AM
15	Practice cycloplegic retinoscopy.	3/29/2016 11:41 PM
16	It is imperative to do as many refractions as possible to become familiar with the technique as it cannot be learned by reading any amount of books on the subject.	3/29/2016 10:16 PM
17	Write down your answers. Go with your first answer, write it down, check over only if you have time.	3/29/2016 9:39 PM
18	lots of practice	3/29/2016 7:50 PM
19	Retinoscopy practice is essential. Attending a course is also very helpful.	3/29/2016 7:29 PM
20	I would advise providing a STOP WATCH in every station to be operated ON by the Examiner at the start and end of each station ; May be better than the instructor who verbally begin , warn and end the station ???	3/29/2016 6:12 PM
21	Practice the routine for each station under time pressure. Bring your own equipment on the day of the exam	3/29/2016 5:57 PM
22	Get an optometrist to critique your technique. Practice a lot yourself on patients in clinic	3/29/2016 5:22 PM

Q9 Please write any other comments you have about the Refraction Certificate Exam below.

Answered: 16 Skipped: 15

#	Responses	Date
1	Although the examination overall tests essential skills required for an ophthalmologist, it does not consider that a capable clinician will hopefully be able to rectify a poor retinoscopy result (e.g. derived due to poor reflexes in an elderly individual) during subjective refraction. Along this line, it would be informative to know what the tolerance for the final prescription in all stations is, as this would aid better with preparation for the exam. Additionally, patient information provided in every station such as unaided visual acuities was handwritten, and in one of the stations the starting prescription expressed in positive cylinder was different from the one in negative cylinder form. Although the examiner did acknowledge this error, limited time available for each station mandate that every piece of information provided is valid rather than misleading. In summary, a fairer assessment of one's knowledge would be examining the entire sequence of refraction (retinoscopy, subjective refraction, near addition, etc.) in one go, while increasing time availability would limit the possibility of mistakes during answer sheet completion.	4/10/2016 3:29 PM
2	I had a positive experience in three of the four rooms - examiners were friendly and helpful and ensured that I was well orientated prior to starting each station. In the other room however I was very unhappy with my experience. Prior to entering, I asked the invigilator if a tape measure would be available for the near vision station as I had left mine in my bag - she went to check and assured me that 'everything I need is in there'. Upon entering, the examiner pointed out that there was only one +1.00 lens in the lens set (the other one was missing). I completed the best vision sphere station and moved onto binocular balance but was somewhat hindered by the missing lens (as I have practiced my routine using both +1.00 lenses). During the one-minute orientation for the third station (near vision), the examiner sat down and began marking my mark sheets in clear view (which I didn't want to see, as I felt I hadn't performed very well!). I was unsure whether to proceed with preparing for the near vision station, as in the first two stations the examiners had taken an active approach and guided me through the orientation period, so I was expecting this examiner to do the same. After a few more moments I felt I could wait no longer and asked if I could start to prepare by myself - she replied that I could, but at that moment the invigilator announced the start of the next station. I then had to spend at least two of the five minutes locating the near vision chart, fitting the trial frame and inserting the lenses. I asked the examiner for the tape measure to which she looked around and replied that there wasn't one. She did locate a 15cm ruler and handed this to me (to measure a distance of around 40cm). By this time the station was nearly over, I did what I could but ran out of time and failed to complete it. Talking to a colleague following the examination, he reported that in one of his stations there was a delay in starting, but the examiner had allowed him "an extra couple of minutes" at the end. I on the other hand, was not allowed any extra time. I have spent a considerable amount of time and money ensuring that I was well prepared for this exam but I feel that there is a great deal of subjectivity, which makes it very difficult. In addition, I feel that expecting us to accomplish a skill to examination standard, in our own time and with no tuition, that optometrists study for three years at university in addition to a pre-registration year, is unreasonable. This hard-acquired skill will then be lost as it will not be required in our clinical practise, until we are on a paediatric rotation when we will be expected to refract young children (the accuracy of which will then be checked by the hospital optometrist). I agree that refraction is an important part of our training, but I feel that the way in which it is currently examined needs considerable improvement. I would prefer to use the £2500 I have thus far spent on trying to pass this exam to pay a local optometrist for a month's placement. In this way I could receive proper tuition under expert supervision and be assessed by someone who has gained an understanding of my abilities over time by observing me refract in practise rather than a subjective and non-standardised OSCE setting. I hope that my comments will be taken into consideration when marking my examination and when planning for future OSCEs. Thank you very much for reading.	4/10/2016 12:17 AM
3	Time is not enough for some stations. And if candidates are nervous they can take more time getting comfortable with the environment.	4/5/2016 8:58 PM
4	The lenses in two of the rooms had metal rims where it was very difficult to see the engraved power, particularly in dim light conditions. Easy to misread or make mistake if previous candidate placed lenses back in incorrect positions. Cyl axis also only indacted by small line on lens, again difficult to see to align with ret streak light.	4/3/2016 10:34 PM
5	Good examination and well-organized.	4/2/2016 3:59 PM
6	Given the how expensive the exam is (£655 + expenses), I would have expected it to be much better organised and standardised. If computerised charts are to be used, examiners should be familiar with them and there should be a technician on hand to quickly resolve any unpredictable issues.	4/1/2016 9:42 PM
7	The rooms did not have doors between them. It was off putting to do your job hearing the other person doing the best sphere. Sound insulation would have been better.	4/1/2016 12:21 PM
8	well organized exam, although the time appears like flies during the osce stations	3/31/2016 10:06 PM

Refraction Certificate 22-24 March 2016 CANDIDATE FEEDBACK OSCE stations

9	Why can't candidates be provided with flippers for the reading station? When the patient is already using a +2.00 lens, you do not have another one to use for the correct near add? It seems a waste of money an ophthalmologists specifically spending money to buy a "flipper" when they will probably never/very rarely use it again. It is a shame that there is differences in refraction teaching amongst different placements based upon the different optometrist availability and departmental pressures. I have found it extremely difficult to get refraction teaching in the hospital and it has been even more difficult to get this in the community. Whilst I have attended a course, I think it is essential to get one-to-one feedback on technique, especially if you have failed previously.	3/31/2016 8:19 PM
10	I found the lenses in the room to be very difficult to use, and felt unfairly disadvantaged as they were not clearly marked.	3/30/2016 8:24 PM
11	Generally clear instructions, however was told prior to exam the trial frame and lenses could be put on patient prior to start, however I was not allowed do this at the cylinder refinement station. Also at this station the electronic chart was difficult to use, and resulted in wasted time	3/30/2016 2:55 PM
12	Better retinoscopes should be available. Some stations definitely require more time.	3/30/2016 11:47 AM
13	some dirty lenses, with missing labels retinoscopes all different type in each station	3/29/2016 7:50 PM
14	I think the exam could be fairer in terms of the 5 minute stations - these are too short (especially the near add station) generally to say/do everything to gain full marks.	3/29/2016 7:29 PM
15	The candidates not all, are familiar with that LCD display , Me I was not able to choose the presumed vision chart e.g Astigmatic Fan to be able to do subjective verification of Cylinder ?? Although the LCD display gives much better an estimate , I was confronted with it with no time to be professional in operating it .!!!! Yet a printed chart and laser pointer may be easier for some candidates like me ???.	3/29/2016 6:12 PM
16	Good over all exam. Smoothly run.	3/29/2016 5:22 PM