

Intercollegiate Committee for Basic Surgical
Examinations

2013/14 ANNUAL REPORT

MRCS

**The Membership Examination of the Surgical Royal
Colleges of Great Britain and Ireland**

DO-HNS

The Diploma of Otolaryngology – Head & Neck Surgery

June 2014

CONTENTS	PAGE
1. Introduction	2
2. The MRCS examination: purpose and structure	2
2.1 Part A (written paper)	3
2.2 Part B (OSCE)	3
3. The MRCS and the Intercollegiate Surgical Curriculum Programme (ISCP)	3
4. The MRCS examination	
4.1 Part A (written paper)	3
2013-14 Review of Activity	4
4.2 Part B (OSCE)	5
2013-14 Review of Activity	6
Standard Setting	6
5. The Diploma of Otolaryngology – Head & Neck Surgery (DO-HNS)	8
Standard setting the DO-HNS examination	8
2013-14 Review of Activity	8
6. Quality assurance	
6.1 The role of the Internal Quality Assurance Committee (IQA)	9
6.2 Assessors	10
6.3 Equality & Diversity	10
6.3.1 Equality and Diversity Examiner Training	10
6.3.2 Review and Improve the Collection of and Monitoring of Demographic Data	11
6.3.3 Analysis of Pass Rates between the Protected Characteristics	11
6.3.4 Analysis of Language used in MCQs and OSCE scenarios	11
6.3.5 Review of Procedures	11
2013-14 Review of IQA Activity	11

The Intercollegiate Committee for Basic Surgical Examinations (ICBSE) would welcome comments on this Annual Report and ways in which it can be improved in future years. If you have comments on this Report please send them to: The Chairman, ICBSE, c/o ismith@icbse.org.uk

1. Introduction

This is the **seventh** Annual Report of the Intercollegiate Committee for Basic Surgical Examinations (ICBSE) and covers the period August 2013 to July 2014.

The purpose of the Annual Report is to provide a definitive source of information about the Membership Examination of the Surgical Royal Colleges of Great Britain (MRCS) and the Diploma of Otolaryngology – Head & Neck Surgery (DO-HNS) for all interested stakeholders including candidates, trainers, Assigned Educational Supervisors and the public.

The structure, standard and quality assurance of the MRCS and DO-HNS examinations are the responsibility of the ICBSE which has a number of specialist subgroups each responsible for a different aspect of the examination.

The purpose of ICBSE is as follows:

- To develop and oversee Intercollegiate Membership examinations for assessing the standards of trainees during and at the end point of Core Surgical Training;
- To develop and oversee the DO-HNS examination.

ICBSE's work may be classified into three activities:

- maintaining the quality and standard of the examinations within its remit;
- delivering incremental improvements in service standards;
- developing the examinations within its remit to meet internal and external requirements.

These three activities have equal priority.

2. The MRCS examination: purpose and structure

The Membership Examination of the Surgical Royal Colleges of Great Britain and in Ireland (MRCS) is designed for candidates in the generality part of their specialty training. It is a crucial milestone that must be achieved if trainees are to progress to specialty surgical training as defined by the surgical Specialty Advisory Committees (SACs). The purpose of the MRCS is to determine that trainees have acquired the knowledge, skills and attributes required for the completion of core training in surgery and, for trainees following the Intercollegiate Surgical Curriculum Programme, to determine their ability to progress to higher specialist training in surgery.

It is anticipated that on achievement of the intended outcomes of the curriculum the surgical trainee will be able to perform as a member of the team caring for surgical patients. He or she will be able to receive patients as emergencies, review patients in clinics and initiate management and diagnostic processes based on a reasonable differential diagnosis. He or she will be able to manage the peri-operative care of patients, recognise common complications and be able to deal with them or know to whom to refer them. The trainee will be a safe and useful assistant in the operating room and be able to perform some simple procedures under minimal supervision and perform more complex procedures under direct supervision.

The MRCS examination has two parts: Part A (written paper) and Part B Objective Structured Clinical Examination (OSCE).

2.1 Part A (written paper)

Part A of the MRCS is a machine-marked, written examination using multiple-choice Single Best Answer and Extended Matching items. It is a four hour examination consisting of two papers, each of two hours' duration, taken on the same day. The papers cover generic surgical sciences and applied knowledge, including the core knowledge required in all surgical specialties as follows:

Paper 1 - Applied Basic Science
Paper 2 - Principles of Surgery-in-General

The marks for both papers are combined to give a total mark for Part A. To achieve a pass the candidate is required to demonstrate a minimum level of knowledge in each of the two papers in addition to achieving or exceeding the pass mark set for the combined total mark for Part A.

2.2 Part B (OSCE)

The Part B (OSCE) integrates basic surgical scientific knowledge and its application to clinical surgery. The purpose of the OSCE is to build on the test of knowledge encompassed in the Part A examination and test how candidates integrate their knowledge and apply it in clinically appropriate contexts using a series of stations reflecting elements of day-to-day clinical practice.

3. The MRCS and the Intercollegiate Surgical Curriculum Programme (ISCP)

The MRCS examination is an integral part of the assessment system of the Intercollegiate Surgical Curriculum Programme (ISCP) <http://www.iscp.ac.uk>. Ten surgical specialties: cardiothoracic surgery; general surgery; neurosurgery; oral & maxillofacial surgery; otolaryngology; paediatric surgery; plastic surgery; urology; vascular; and trauma & orthopaedic surgery collaborate through the ISCP in developing a competence-based curriculum which defines the attributes required of a successful surgeon. The web-based ISCP curriculum and its assessment system, including the MRCS and DO-HNS, have been approved by the General Medical Council (GMC).

The MRCS content has been reviewed to ensure that it continues to articulate with the changes to ISCP. The MRCS content guide continues to set out for candidates a comprehensive description of the breadth and depth of the knowledge, skills and attributes expected of them, and thus provides a framework around which a programme of preparation and revision can be structured. It also sets out the areas in which candidates will be examined. It has been formatted to maximise its accessibility to candidates and examiners and is available on the intercollegiate website http://www.intercollegiatemrcs.org.uk/new/guide_html

4. The MRCS Examination

4.1 Part A (written paper)

Based on the ISCP curriculum, a syllabus blueprint for the Part A examination sets out a broad specification for the numbers of questions on each topic to be included in each paper of the examination. It is not possible to sample the entire syllabus within a single Part A paper but the blueprint and specification ensures that the common and important content is routinely covered and that the entire syllabus is sampled over time.

Questions are coded according to the area of the syllabus to which they relate and are held in a computerised item bank. Groups of question writers are commissioned to produce new questions according to the agreed specification and, following editing and specialist review, these questions are added to the item bank. For each diet of the examination questions are selected from the bank using the examination blueprint and are compiled into a paper by the MCQ question paper group of the ICBSE.

Questions are carefully planned from the outset to be at an appropriate level of difficulty. The standard for the paper is originally set using a modification of the Angoff procedure where a group of colleagues estimates the performance of a notional 'just good enough to pass' candidate. In order to ensure that standards are set at an appropriate and realistic level the colleagues include practising surgeons, specialist basic scientists, trainers, trainees and a patient representative.

A number of 'marker' questions taken from a previous examination are included in each Part A paper and are used to calibrate the standard and help to ensure that there is continuity of the standard of the examination over time.

Following each examination a standard setting meeting is held at which the performance of candidates on each question is scrutinised together with their performance on the test overall. A range of statistical measures is used to evaluate the reliability and facility of the examination and its individual questions. It is at this stage that candidate feedback on the examination is considered and taken into account when deciding whether or not to exclude a specific question from the overall examination outcome. Using the benchmark of the previously described Angoff exercise, the performance of candidates on the marker questions is reviewed together with other statistical data from the present and previous examinations to set the pass/fail cut-off mark.

Candidates are given their Part A score and the score required to pass the examination, thus giving them an indication of how far short of, or above, the required standard they are.

2013-14 Review of Activity

During 2013-14 the Principles of Surgery in General paper of the Intercollegiate MRCS Part A exam has included Single Best Answer (SBA) items as well as Extended Matching (EM) items.

The phasing of the introduction of the SBAs over this period has been thus:

April 2013	up to 30 SBAs
September 2013	up to 30 SBAs
January 2014	up to 30 SBAs
April 2014	up to 60 SBAs

The continuation of this process is planned to proceed as follows:

September 2014	up to 60 SBAs
January 2015	up to 60 SBAs

The two types of questions are organised in to separate groups within the paper. The number of questions in the Principles of Surgery in General paper remains the same at 135 and there is no change in the time allowed for candidates to complete the paper.

The change was implemented to improve further the reliability of the MRCS Part A examination.

In addition, the Content Review Sub-Group met on several occasions throughout the year to introduce a refined coding system to the Multiple Choice Question bank. This coding of the questions will allow the question bank to be mapped against the syllabus, ensuring an appropriate coverage of syllabus areas across each examination paper. This work will continue over the forthcoming year and will include refining the coding system used for the OSCE scenarios with the same aim of achieving appropriate syllabus coverage in this component.

During 2013-14 the use of images in the Part A paper was introduced, which allowed the assessment of a syllabus area in a more straightforward manner than with the use of prose alone.

Summary descriptive statistics: MRCS Part A (written paper)

	Total number sat	Passing % (and number)	Failing % (and number)	Pass mark %	Measure of reliability*	Measurement error** %
September 2013	2093	34.6 (725)	65.4 (1368)	70.1	0.95	2.64
January 2014	1401	35.3 (494)	64.7 (907)	69.4	0.95	2.67
April 2014	1743	38.6 (672)	61.4 (1071)	69.7	0.95	2.71

* An expression of the consistency and reproducibility (precision) of the examination. The measure used here is KR-20.

** Measurement error refers to the difference between the 'true' score and the score obtained in an assessment. Measurement error is present in all assessments but is minimised by good item design and test construction.

4.2 Part B (OSCE)

Scenarios and questions for the OSCE stations are written by a team of Broad Content Area (BCA) specialists, headed by leads and deputies using detailed templates and following detailed writing guidance. Draft scenarios are scrutinised by a team of reviewers before being edited and approved for piloting. All scenarios are piloted either as an unmarked extra station in a 'live' examination or as part of a specially arranged event. Following further revision as necessary, these new scenarios are then added to the question bank.

Scenarios from the bank are then selected and grouped into examination 'circuits' so as to achieve the appropriate balance of content and challenge. A number of different circuits are selected for use throughout the examination period, with the same circuit used in each of the Colleges on any given day. Each 'circuit' is taken by a statistically significant number of candidates for quality assurance purposes.

At the end of each examination diet, the results of all candidates are combined and the pass/fail boundaries are agreed at a single standard setting meeting attended by representatives of each of the Colleges.

The MRCS Part B (OSCE) was introduced for first examination in October 2008 and has been revised over time.

ICBSE continues to review and further develop the MRCS examination based on the evidence available. In December 2010 it established a working party to undertake a review of the examination programme to commence after three diets of the May 2010 revision; evidence for the proposed changes was based on six diets of the examination (May 2010 to February 2012).

This evidence indicated that the OSCE had an appropriate number of active stations (18) along with two preparation stations, and that this provides an adequate opportunity to sample a candidate's performance. The working party proposed a number of smaller changes which, together, represented a major change to the MRCS Part B (OSCE).

2013-14 Review of Activity

Review implementation

Following the successful submission of the major revision request to the GMC in July 2012, (*referred to in the 2011-12 Annual Report*), in 2013-14 ICBSE concentrated on establishing and improving the processes that were introduced following approval by the GMC. The main areas of activity concerned:

- A proposal drafted to go to the GMC Curriculum Advisory Group to improve further the MRCS Part B standard setting process. The changes will ensure that the examination processes evolve in line with current best practice and provide better evidence to inform the standard setting process.
- The introduction of more precise metrics to measure the reliability of OSCE scenarios. The analysis of these figures will continue to be reviewed over a period of time, facilitating the development of historical performance data for each question to better inform the question composition of future Part B circuits.

Standard Setting from February 2013

Each standard setting meeting continues to begin with an analysis of the level of discrimination and facility of each of the circuits and their constituent stations, including a review of candidate, examiner and Assessor feedback, to ensure consistency and comparability of demand.

Each candidate's performance on each of the examined stations continues to be assessed in two ways:

- a mark is awarded using a structured mark sheet containing assessment criteria for each content area and for each assessed domain;
- an holistic judgement is given using one of the categories: pass, borderline or fail. **This is a change from the previous arrangement of pass, borderline pass, borderline fail and fail.**

The following information is therefore available for each candidate:

- a total mark for each station;
- a category result for each station i.e. pass, borderline, fail;
- a total mark for the OSCE;

- a total mark for each of the now two combined BCAs, described by the shorthand, 'Knowledge' and 'Skills'.

The borderline regression method of standard setting is used to determine the contribution of each station to the pass mark. These contributions are summed to give a notional pass mark for each of Knowledge and Skills.

The review of the OSCE carried out in 2012 had concluded that using the borderline regression method and adding 0.5 Standard Error of Measurement (SEM) to each broad content area pass mark retained the previous rigour. This position had been accepted by the GMC, as was the recognition that the ICBSE would retain some flexibility in the multiple of the SEM to be used based on an evaluation of all of the available evidence.

The experience of the first examination conducted under the revised rules (that of February 2013) was that the addition of 0.5 SEM to each of Knowledge and Skills did not maintain the previous standard and it was agreed that the multiple to be used should be 0.84 SEM. It was further agreed that the addition of 0.84 SEM should remain the default position until evidence suggested that it should be changed, and this figure has been used in all subsequent examinations. It may be noted that, because both Knowledge and Skills have to be passed at the same sitting, the SEM for the OSCE as a whole may be considered to be in excess of the 1.0 value widely accepted as the desirable minimum.

To safeguard the interests of patients, and as a driver to learning, it is a requirement for passing the OSCE that candidates must achieve a minimum level of competence in each broad content area at the same examination.

Each candidate is given detailed feedback showing their mark on each broad content area (Knowledge and Skills) and for the OSCE overall.

Summary descriptive statistics: MRCS Part B (OSCE)

	Total number sat	Passing % (and number)	Failing % (and number)	Pass mark %	Measure of reliability*	Measurement error** % (raw)
October 2013	504	57.3 (289)	42.7 (215)	Knowledge:68.8 Skills: 65.5	Knowledge: 0.69 Skills: 0.81 Total: 0.84	Knowledge: 5.6 (9.0) Skills: 6.3 (10.1) Total: 3.9 (13.9)
February 2014	372	51.9 (193)	48.1 (179)	Knowledge:68.1 Skills: 66	Knowledge: 0.71 Skills: 0.76 Total: 0.82	Knowledge:5.4 (8.7) Skills: 5.3 (10.6) Total: 3.9 (14.0)
May 2014	527	59.2 (312)	40.8 (215)	Knowledge: 68.9 Skills: 66.5	Knowledge: 0.74 Skills: 0.78 Total: 0.83	Knowledge: 5.1 (8.1) Skills:5.1 (10.1) Total: 3.7 (13.4)

* An expression of the consistency and reproducibility (precision) of the examination. The measure used here is Cronbach's alpha.

** Measurement error refers to the difference between the 'true' score and the score obtained in an assessment. Measurement error is present in all assessments but is minimised by good item design and test construction.

5. The Diploma in Otolaryngology – Head & Neck Surgery (DO-HNS)

The Diploma in Otolaryngology – Head and Neck Surgery (DO-HNS) was established as an intercollegiate examination in April 2008. Its purpose is to test the breadth of knowledge, the clinical and communication skills and the professional attributes considered appropriate by the Colleges for a doctor intending to undertake practice within an otolaryngology department in a trainee position. It is also intended to provide a test for those who wish to practise within another medical specialty, but have an interest in the areas where that specialty interacts with the field of otolaryngology. It is also relevant for General Practitioners wishing to offer a service in minor ENT surgery.

The Intercollegiate DO-HNS examination has two parts:

Part 1 – Written Paper comprising Multiple True/False Questions and Extended Matching Questions in one paper to be completed in two hours.

Part 2 – Objective Structured Clinical Examination (OSCE) normally comprising approximately 25 bays normally of seven minutes' duration each.

With effect from August 2011, trainees who have achieved a pass in Part A of the Intercollegiate MRCS examination *and* a pass in Part 2 of the Intercollegiate DO-HNS examination have been eligible to apply for MRCS (ENT) membership of one of the Royal Surgical Colleges.

Standard setting the DO-HNS examination

The DO-HNS standard setting procedure for the Part 1 written paper is very similar to that described above for the MRCS (see 4.1 above) and is based on an initial Angoff process, the use of marker questions and the scrutiny of individual items and statistics at a standard setting meeting.

The standard setting technique used in the OSCE to determine the pass mark is an Angoff process: all examiners determine a pass mark for each station based upon the minimum level of competence expected of an ENT trainee at the end of his/her CT2/ST2 post before entry to higher surgical training or just at the start of higher surgical training. Using this method, at least 12–15 examiners will ascribe a pass mark to each station. The marks are totalled and averaged and this then determines the region of the pass mark. The final pass mark is determined by inspection of the mark distribution around the Angoff pass mark.

2013-14 Review of Activity

During 2013-14 the Part 2 OSCE was held in Dublin in October 2013, London in February 2014 and Edinburgh in May 2014.

The MRCS Lead Assessor worked with the DO-HNS Sub-Group to review quality assurance arrangements. This is likely to result in the introduction of the use of Assessors and to provision of feedback to examiners.

Summary descriptive statistics

DO-HNS Part 1 (written)

	Total number sat	Passing % (and number)	Failing % (and number)	Pass mark %	Measure of reliability*	Measurement error** % (raw)
September 2013	39	66.7 (26)	33.3 (13)	75.6	0.93	2.2 (6.47)
January 2014	39	71.8 (28)	28.2 (11)	77.4	0.96	2.1 (6.19)
April 2014	35	74.3 (26)	25.7(9)	76.8	0.89	2.1 (6.30)

* An expression of the consistency and reproducibility (precision) of the examination. The measure used here is KR-20.

** Measurement error refers to the difference between the 'true' score and the score obtained in an assessment. Measurement error is present in all assessments but is minimised by good item design and test construction.

DO-HNS Part 2 (OSCE)

	Total number sat	Passing % (and number)	Failing % (and number)	Pass mark %	Measure of reliability*	Measurement error** % (raw)
October 2013	64	51.6 (33)	48.4 (31)	Day 1: 68.5	Day 1: 0.79	Day 1: 2.6 (12.85)
February 2014	90	60 (54)	40 (36)	Day 1: 69.1 Day 2: 69.0	Day 1: 0.66 Day 2: 0.87	Day 1: 2.7 (12.89) Day 2: 2.5 (12.48)
May 2014	68	61.8 (42)	38.2 (26)	Day 1: 71.0 Day 2: 71.4	Day 1: 0.77 Day 2: 0.67	Day 1: 2.6 (12.30) Day 2: 2.7 (12.68)

* An expression of the consistency and reproducibility (precision) of the examination. The measure used here is Cronbach's alpha.

** Measurement error refers to the difference between the 'true' score and the score obtained in an assessment. Measurement error is present in all assessments but is minimised by good item design and test construction.

6. Quality Assurance

6.1 The role of the Internal Quality Assurance Committee (IQA)

The quality of the MRCS and DO-HNS examinations is monitored by the ICBSE's intercollegiate Internal Quality Assurance Committee (IQA). The IQA meets three times each year and receives, for each part of the examinations, the following information:

- overall pass rates and descriptive statistics for the latest diet and previous diets;
- pass/fail breakdown by candidates'
 - first language for the latest diet and previous diets;
 - gender for the latest diet and previous diets;

- primary medical qualification for the latest diet and previous diets;

After each examination, every candidate is invited to complete an anonymous feedback questionnaire. Examiners are invited to complete similar questionnaires. The IQA receives and reviews the feedback from examiners and candidates and correlates them with the statistical information on the examination. IQA also receives a feedback report from the Assessors for each diet of examinations

In its interpretation of the data on the examination, the IQA is advised and assisted by an independent Educational Consultant who analyses the information and writes a brief report on each part of the examination, drawing any potential anomalies to the attention of the Committee for consideration and action.

The IQA Committee will refer matters which it considers to be in need of attention or further scrutiny to the appropriate subgroups of ICBSE. It also makes regular reports and recommendations to the ICBSE, which has overall responsibility for the MRCS and DO-HNS examinations.

6.2 Assessors

Independent Assessors, established by IQA in 2010/11, attend every diet of the MRCS Part B (OSCE) at each College. Their role is to:

- monitor, evaluate and provide feedback on the conduct and performance of examiners in all components of the MRCS to ensure that the highest possible standards of examining are achieved and maintained;
- act as guardians of standards for the intercollegiate examinations over time and across examination venues;
- enhance the professional experience of examiners by encouraging reflective practice;
- act as mentors for new examiners to help them build confidence and develop into the role;
- assist in the review of the assessments used to enhance the comparability, validity and reliability of the examinations.

It has been recognised that greater pressures will be placed on the pool of Assessors with the phasing out of the OCC and increase in overseas OSCE venues. Discussions have place to implement a plan of Assessor recruitment for the year to come.

6.3 Equality & Diversity

2013-14 Review of Activity

As a consequence of the introduction of the Joint Surgical Colleges Meeting (JSCM) Equality and Diversity policy in July 2013, the ICBSE undertook the following activities:

6.3.1 Equality & Diversity examiner training

ICBSE commissioned the development of an examination-specific training programme to enhance awareness of E&D issues while examining. This will help to ensure that all candidates experience a fair examination and to mitigate the risk of any unintended bias within the examination.

6.3.2 Review and improve the collection and monitoring of demographic data.

Recognising the importance of equal opportunities data for candidates and examiners in ongoing analyses of examination outcomes, ICBSE sought to ensure that the coverage of these data is as comprehensive as possible. Consequently, the Equal Opportunities form was amended to ensure that Colleges are collecting data on all the necessary protected characteristics and examination participants will be required to 'opt-out' of submitting this information, rather than the 'opt-in', as is currently the case.

6.3.3 Analysis of pass rates between the protected characteristics

Provisional analysis of the data for both parts of the examination has been performed. In view of the large proportion of candidates who do not volunteer ethnicity information, drawing conclusions is difficult and to this end ICBSE is embarking on a process, with the assistance of the GMC, in completing areas of missing information. In addition ICBSE is commissioning a full external analysis of the MRCS performance data in relation to candidate demographics. It is envisaged we may be in a position to publish full and accurate analysis in the near future. The current response rate from candidates specifically in relation to ethnicity whose primary medical qualification is from the UK is:

		Ethnicity values (Sept 2013-May 2014)			
College	Total entries	Blank	Unspecified	Other	Ethnicity specified
RCSED	913	89	193	56	575
		9.70%	21.10%	6.10%	63.00%
RCSENG	2985	409	325	151	2100
		13.70%	10.90%	5.10%	70.40%
RCPSG	111	0	5	7	99
		0	4.50%	6.30%	89.20%
RCSI	36	0	24	0	12
		0.00%	66.70%	0	33.30%

The provisional analysis suggests that the MRCS results show similar ethnicity distributions to other postgraduate examinations and to enhance its performance, pending a fuller analysis, has embarked on a series of work streams as outlined in this report.

6.3.4 Analysis of the language used in MCQs and OSCE scenarios.

ICBSE investigated the analysis of the language used in the multiple-choice questions and OSCE scenarios used in the MRCS and DO-HNS exams from equality and diversity angle.

6.3.5 Review of procedures

A review of the appeals, reasonable adjustment, malpractice and examiner recruitment and appointment procedures has been carried and will be continuing to ensure the documentation is up to date and follows best practice.

2013-14 Review of IQA Activity

- An improved process for the provision of feedback to examiners relating to their marking performance was introduced. Feedback will be produced for all examiners after each diet. This will enable examiners to maintain a consistent and appropriate standard and to deliver a high-quality service. In addition to this, examiners are

monitored by regression analysis with regard to their marking at each OSCE diet, which further assists in ensuring that standards of marking are maintained consistently.

- An Assessor Code of Practice document was produced, which acts as reference tool for Assessors and provides guidance in relation to the responsibilities of their role. The document outlines good practice with regards to their conduct during and outside of the examination itself. The Assessors are in attendance at UK and overseas OSCE centres to ensure that standards are maintained at all MRCS Part B OSCE centres.
- IQA Committee worked with the OSCE Sub Group to develop metrics to assess the quality of the OSCE scenarios.