Abstracts

Medical School Finals

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The Assessment Strategy for the Final Year at the Peninsula Medical School

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Context and setting
Peninsula Medical School is a new school with an innovative curriculum and assessment themes based around medical knowledge, clinical capability and professionalism, rather than being discipline based. We needed to develop an assessment strategy for the final year, which reflected current best practice.

Why the innovation/development was introduced
We sought to provide a balance between the undergraduate assessments and the assessment approaches in the Foundation years, which would fulfil the requirements of ‘Tomorrow’s Doctors’.

What is being done?
The themes of applied medical knowledge, clinical capability and professional practice which form assessment strands in years 1-4 have moulded the assessment strategy for the final year. The School’s philosophy of ‘frequent look, rapid remediation’ remains in place so that assessment is continuous throughout the final year.

Particular innovations are:
- The continuation of Progress Tests but with a change from norm-referencing to criterion-referencing.
- The adaptation of the principles of mini-CEX and Case-Based Discussion to the undergraduate context.
- The introduction of 5 Professionalism Judgements, using a modified Peer Assessment Tool to support each judgement. The clinical teacher is asked, “If this student had the knowledge and clinical skills expected at graduation, does the student have the professionalism to be your F1 doctor”?
- The move of portfolio assessment by the Academic Tutor to a more appraisal-like approach.
- The deliberate introduction of many opportunities for formative feedback from a variety of sources including peers, clinical teachers, patients and other health professionals.

Evaluation of results or impact
None as yet.
Simulated Video Ward Round: A novel way of assessing good medical record keeping in the Final MB OSCE

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Context and Setting
The Leeds Final MB clinical examinations moved to a full OSCE format in 2003. Underpinned by wide-ranging ILOs (Intended Learning Outcomes), OSCE blueprinting aims to span the full range of competencies required of our graduates, guided by Tomorrow’s Doctors.

Why this development was introduced
The Leeds curriculum highlights medical certification, record keeping and patient safety as key ILOs. Real life clinical scenarios for these ILOs usually involve professionals and patients, less easily examined in a ‘traditional’ OSCE station with a patient simulator and examiner. This prompted the development of new methods to incorporate assessments of these abilities in an OSCE context.

What was done?
A ‘Video Ward Round Station’ was developed for the 2006 Final MB OSCE. This involved carefully scripting and filming an eight-minute clip of a simulated post take ward round involving a patient with a suspected pulmonary embolus. The clip included a junior doctor on the round discussing salient investigation results with the Consultant.

The purpose of this station was to assess students’ abilities to produce competent records of the ward round, incorporating key features of the consultation, important examination findings and a summary of key investigations. A marking checklist was carefully developed. After the end of the clip, the student was given a short time to complete their notes before the station continued with structured questioning around the management of pulmonary emboli, assessing clinical knowledge and prescribing, mimicking the teaching aspect of the ward round.

Impact
The quality metrics of the station compared well with those of the more traditional stations, contributing positively to cronbach’s alpha, and with good levels of inter-grade discrimination. The success of this novel station has prompted further development for the 2007 OSCE, with stations based on acute care and patient safety augmented with video components.
Assessor training and feedback – effects on criterion based assessment in an OSCE (Objective Structured Clinical Examination) context

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Background
For many UK Medical Schools, standardised tests of clinical skills such as OSCEs are widely used to assess clinical competence, at both undergraduate and postgraduate levels. Reliability is a major feature of these assessments and the effect of assessor variance a key component. Assessor training has taken place in Leeds for the last 3 years to standardise examiner behaviour, and reduce inter-rater variance in OSCEs

Aims & Objectives
As initial, smaller-scale studies have shown varying effects of examiner training, this study looked at the effect of assessor training on stringency and marking. An ongoing component of the research looks at the effect of online feedback to examiners about their performance

Methods
Initial analysis of an eighteen station OSCE, involving 207 candidates and 108 assessors. The reliability of this examination was acceptable with a Cronbach’s alpha of ~0.7. Comparisons were made between stations and whether assessors had been trained.

Results
Untrained assessors awarded higher marks than trained counterparts, with significant differences between mean marks on t-testing. Multiplying up these effects for an eighteen station OSCE, students benefit on average by 15 marks, with the untrained assessor effect potentially allowing 3 students to avoid overall failure.

Discussion & Conclusion
Assessor training does make significant differences to scoring students’ OSCE performance, and suggests that all examiners should receive OSCE training. Undertaking an OSCE with non-trained assessors risks producing a significant fixed effect unrelated to candidate performance. Other mechanisms, such as minimum station pass rules can be employed to prevent over-compensation of failing students by untrained assessors.

We are providing confidential, individualised feedback to examiners via a secure, online server to help reinforce the effects of training. Current research focuses on longitudinal data collection, aiming to examine if there are significant time effects with respect to the impact of assessor training.
An integrated assessment of clinical and communication skills for final year medical students: the Simulated Clinical Encounter Examination (SCEE)

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Context and setting
In 2005, a new structure for Final MB BChir examinations at the University of Cambridge was introduced, consisting of six components:

- Objective Structured Practical Examination: OSCE assessment of practical clinical skills
- MCQ paper: testing knowledge
- EMQ paper: testing knowledge and its application
- Short Essay Questions: relating to Public Health, Medical Ethics and Law
- OSCE-style Clinical Examination testing physical examination skills and clinical reasoning with real patients
- Simulated Clinical Encounter Examination (SCEE)

Why was the SCEE examination introduced?
To produce a state-of-the-art integrated assessment of students’ clinical and communication skills to reflect recent developments in communication skills teaching in undergraduate medical education and to assess key content and process skills.

What does the SCEE test?
The SCEE assesses students’ competence in:

- ‘Talking’ rather than ‘physical examining’ skills
- Process skills of communication integrated with content and clinical reasoning skills
- Clinical competence in the medical interview
- Skills, attitude and application of knowledge

Description of the SCEE
- station-based, OSCE-style examination
- 12 stations
- One simulated patient and one examiner per station
- 3 hours overall per student in 3 separate circuits of approximately 1 hour each

How does the SCEE work?
- 4 stations history taking and clinical reasoning
  - 15 minutes
    - 10 minutes observed history taking
    - 5 minutes structured oral
- 4 stations explanation and planning
  - 14 minutes
    - candidates receive comprehensive instructions 2 weeks prior to examination
- 4 stations of challenging situations
  - 10 minutes
    - two stations examine specific information gathering situations e.g. alcohol history, preparation for discharge
    - two stations examine difficult explanation and planning situations e.g. breaking bad news, palliative care, ethical dilemmas
Evaluation
The SCEE has been well received by internal and external examiners. The assessment is reliable, having a high Cronbach’s alpha of around 0.7. A generalisability study is being performed to assess the number of stations of explanation and planning and information gathering required to achieve acceptable reliability.

Issues
The current issues perceived by the faculty are:
• the balance between process and content
• ensuring students approach this examination as a clinical competence test and not "just" communication skills.
Keeping a mix: the value of real and simulated patients in Finals exams

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Cardiff University’s Final MB examination used to consist of long and short cases for specific disciplines. The examiners randomly selected patients so the exam lacked objectivity, reliability and consistency. We have moved to a more reliable, valid and consistent assessment by using a 20 station OSCE at the end of the course.

The exam is organised jointly by 4 Departments (Medicine, Surgery, Clinical Pharmacology and General Practice) but assessment is integrated. Knowledge is assessed by EMQ and Data Interpretation papers. In the OSCE simulated patients are used for 5 communication skills stations and real patients with important signs are used for 9 clinical examinations. (Exam also includes 6 practical procedures).

CU believes that in the Final MB examination it is important to assess both clinical examination skills (process) and interpretation of clinical signs and diagnostic acumen. Structured mark sheets and modified Angoff method are used to standard-set, with greater emphasis on diagnostic skills, than in earlier clinical exams.

<table>
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<td><strong>Real patients</strong></td>
<td><strong>Simulated patients</strong></td>
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<td>• More realistic situation. - students’ interactions with real patients subtly different from simulated patients</td>
<td>• Scenarios can be tailored to test particular skills which would be difficult, i.e. acute presentations, breaking bad news</td>
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<tr>
<td>• Examiners feel more involved</td>
<td>• Reliable and easy to recruit</td>
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<tr>
<td>• Decreased problems with exam security</td>
<td>• Time to recruit patients</td>
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<tr>
<td>• Patients pleased to help and often return</td>
<td>• Time to train actors to perform roles consistently</td>
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<td>• Students assessed on a variety of clinical cases of varying difficulty</td>
<td>• Cost</td>
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The exam is reliable. (Cronbach’s alpha 0.69). External examiner feedback is positive. A recent GMC QABME inspection confirmed that the Final MB is ‘fit for purpose’.

We believe that real patients and simulated patients have important complementary roles in clinical assessment of medical students.
Progress Testing – Can we set pass marks in the final year?

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Context and setting
Peninsula Medical School is a new school with an innovative curriculum and assessment themes based around medical knowledge, clinical capability and professionalism, rather than being discipline based. The first students will graduate in summer 2007. Throughout the first four years of the course we use progress testing to assess students’ applied medical knowledge. The results of progress tests are norm-referenced, that is the grades are set in relation to each cohort’s performance rather than to specific pass-marks.

Why the innovation/development was introduced
We needed to develop a definition of the passing criteria for the final year progress tests. Norm-referencing would by definition lead to some students failing the course.

What is being done?
The literature suggests that norm-referencing is more appropriate than criterion-referencing (pass marks) for progress tests. However, the fact that progress tests are set at the level of a newly-qualified doctor suggests that specific passing criteria could be set. We considered a number of approaches to setting the standard, including Angoff approaches, comparisons with following cohorts and using data from newly-qualified doctors. We had no graduates of our own as yet so any ‘backward look’ to their performance was not feasible.

The data from our own studies with newly-qualified doctors and information from our existing cohorts of students is remarkably similar to that from other studies. Newly-qualified doctors typically score about 60% correct answers and student cohorts typically increase their progress test scores by 10% per year. We have used these data to set a sliding scale of individual pass-marks for the progress tests in the final year.

Evaluation of results or impact
None as yet.
The Assessment of Professionalism in the Final Year at the Peninsula Medical School

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Context and setting
Peninsula Medical School has a curriculum and assessment theme relating to Personal and Professional Development in the first four years of its programme. This theme now extends into the final year which is organised around five clinical blocks. In each block a single student is attached to a clinical team for 4 or 5 weeks.

Why the innovation/development was introduced
We needed to develop an authentic assessment of professionalism based upon the student’s interactions with the clinical team.

What is being done?
Half way through each clinical block the student’s clinical teacher uses a modified Peer Assessment Tool to gather formative information about how the members of the clinical team view the student. They discuss this feedback with the student who is able to learn from it.

At the end of each block the student spends an additional “Professional Practice” week with the team during which they “act up” as the F1 doctor with appropriate supervision. The student is observed during the “Professional Practice” week and at the end of the week the clinical teacher makes the summative Professionalism judgement by answering this question: “If this student had the knowledge and clinical skills expected at graduation, does the student have the professionalism to be your F1 doctor”. The options are Yes, No or Maybe. Detailed comments to qualify the judgement are required.

Any No or Maybe response leads to remediation. Two or more No or Maybe judgements may result in failure of the module and hence inability to graduate.

Evaluation of results or impact
None as yet.
The clerking portfolio as an OSCE station: Preliminary correlation with clerking skills

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Context and setting
At the University of Bristol, clinical skills and attitudes are tested in finals using an observed long case and a 24 x 10min station OSCE divided into 12 examined and 12 invigilated stations. A clerking portfolio station was introduced in 2006.

Why the innovation was introduced
Our aim was to optimise new graduates’ clinical skills by increasing their perception of the importance of carrying out a complete clerking including a concise summary and a plan for initial investigations and management, in real time in a busy hospital setting.

What was done?
Students were asked to anonymize and keep all of their original final year clerkings (signed and validated by a member of the ward staff) in a portfolio. These were collected (but not evaluated) two days in advance of the exam and assessed in the presence of the student by two examiners during the 10 minute OSCE station. Portfolios were marked for legibility, use of English, organisation and completeness, plan of investigation and, where relevant, evidence of improvement over time.

Evaluation and impact
• After initial resentment with the task, student feedback was excellent. Students reported the portfolio acted as an incentive to clerking more thoughtfully, more completely and more frequently.
• Nine of 172 students failed the clerking portfolio station, of whom five subsequently failed to satisfy the examiners in the first long case (out of 24 long case fails). Of the nine portfolio station fails, one failed overall and was required to re-sit the final year.
• The station has excellent consequential validity and appears to have predictive value for failure to satisfy the examiners in the long case on first attempt.
• The predictive value of the clerking portfolio station will be further investigated in the final examination in 2007.

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Leicester Medical School and the Short Long Case Examination

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Context/setting
Regulatory clinical examinations at Leicester Medical School involve serial observation of students consulting with a number of real patients in order to identify and, in the case of the Final Professional Examination, to manage their presenting problems. This process claims validity, acceptability and feasibility. Assessment of reliability, always the most difficult parameter of clinical examinations to assess, is discussed.

Why was it introduced?
Assessing candidates’ ability in clinical problem-solving using long cases, as opposed to single task-specific tests, claims its validity from its authenticity to real-life challenges which doctors face daily. An instrument assessing consultation competence was devised at Leicester, initially in the setting of general medical practice, and was shown to have both face validity and reliability.

What was done?
Only minor modifications to this were deemed necessary in order to make it suitable for the assessment of undergraduate medical students seeing patients in a hospital clinic setting. This format of assessment has been in operation at Leicester Medical School since 1999, and data on student performance, examiner scores and the views of students, examiners and patients have been collected.

Evaluation and impact
Face validity and acceptability of this modified instrument for use in the Finals examination has been established. Data (unpublished) has also shown a degree of inter-rater reliability. Data is also being collected to investigate the correlation between level of performance at Finals examination and candidates’ performance in other assessments within the undergraduate curriculum, and to look at changes in the marking behaviour of examiners against the number of assessments carried out.

References
1. Wass V, van der Vleuten CPM. The long case. Medical Education 2004; 38: 1176-80
Year 5 Assessments in the Manchester Medical School

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The Manchester Medical School uses a wide range of assessment methods during the final year of its programme, designed to ensure the appropriateness of our graduates for university graduation, pre-registration with the General Medical Council and fitness for purpose in year 1 of the Foundation Programme.

The main final examination is at the end of year 5 and includes tests of knowledge in the Progress Test, applied knowledge in the Patient Management Problem (PMP) paper, and skills in the Objective Structured Clinical Examination (OSCE) and Objective Structured Long Examination Record (OSLER) examinations. Year 5 is delivered in four rotating 8-week blocks from August to April, including teaching hospital, district hospital and community placements and an elective period, which may be taken overseas. Students must have satisfactory reports on work and attendance for each placement and additionally submit written reports for the community and elective periods. Before entry into year 5, students must have completed all year 4 assessments to an acceptable level. They are permitted to carry a single unsatisfactory OSCE (either Families and Children or Mind and Movement) which must be passed in November. A cumulative mark of unsatisfactory or low pass in the Progress Test at the end of year 4 requires students to take the mid year Progress Test.

Some additional work and attendance requirements may be completed during year 5 in vacation periods or in the consolidation period after the final examination before graduation. The Progress Test following the Maastricht model is applied in all semesters of the course across 5 years and is designed to show the acquisition of core knowledge on a sequential basis. It comprises 125 MCQ single best answer of 5 questions. The PMP paper consists of 100 EMQ questions (5 clinically based scenarios per stem x 20). The OSCEs include examination, procedural and communication skills stations (6 real patients in 5 minute stations and 8 simulated patients/models/volunteers in 10 minute stations) and 2 OSLERs (real patients in 20 minute stations). Between 5-8% of our students are unsuccessful at first attempt and have a re-sit opportunity in November.

There are plans to modify the current system to bring the main final examination forward to January, with a re-sit in May, to permit graduates to enter the Foundation Programme in August. For the vast majority of successful candidates after the January exempting examination, there are plans to introduce FP style assessments in the form of mini-CEx, DOPS and CbD assessments, to be delivered using a web-based system.
Prescribing Skills of Final Year Medical Students and FY1 Doctors: online assessment and support

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Abstract

Suboptimal prescribing is both common and costly. Prescribing well is a complex task, with advanced cognitive skills needed to maximise benefit and minimise risk. It is not something that is easy to teach or assess. Recently, doctors’ training has radically altered, and, fuelled by concerns over drug error, this has generated important questions regarding the fitness of new graduates to prescribe and the ability of medical schools to adequately protect the public. A fresh approach is needed to deal with this volatile situation.

Our response is a 3-year strategy designed to modernise how prescribing skills are learnt and assessed. The results of phase 1, the construction and evaluation of a web-based Safe Prescribing Exam, are presented here.

In Spring 2006, final year medical students at a London medical school and Foundation Year 1 (FY1) trainees took an online assessment of prescribing skills, developed and overseen by a multidisciplinary group. The tests were constructed to a pre-determined blueprint and delivered through the WebCT virtual learning environment. Scenario-based, key features questions were used in order to promote the application of knowledge in context and to test judgement as well as recall. Responses automatically marked and students were provided with individual and collective targeted feedback.

252 finalists (mean score 50.6%) and 34 FY1 trainees (mean score 61.7%) completed the tests. Cronbach’s α was 0.75. Finalists performed best on ‘mechanism’ questions and worst on ‘prescription writing’. For FY1 trainees, this order was reversed. Evaluations were generally positive, with 80% of both groups stating that it was a fair test of FY1 work and over two-thirds of both groups feeling the exam helped them understand the principles of good prescribing.

Our results highlight the different abilities, and needs, of graduating students and newly practicing doctors. Promoting a safety culture requires thought and effort. We believe that a Safe Prescribing Exam is a worthwhile contribution. Further work is needed to evaluate the impact of training and assessment in prescribing on patient outcomes.

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Simulation-based training and assessment of acute care skills in the undergraduate curriculum

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Demonstration of core clinical skills related to recognition and management of the acutely ill patient is essential prior to graduation. Nottingham Medical School has established a 3-day final year simulation-based training programme to address this issue. However, many students acknowledge that they require significant further rehearsal of these skills before feeling prepared for clinical practice. This abstract describes how we have subsequently expanded acute care training throughout the curriculum and discusses the benefits of using simulation as one of the assessment methodologies employed.

Basic acute care simulations are introduced in the initial clinical phase of training, focusing on the principles and individual skills required for patient management. A series of half-day simulation-based interactive sessions are delivered allowing students to work through 9 clinical scenarios. Self-evaluation encourages students to identify and feedback on their individual strengths and weaknesses. This is supported by a series of relevant practical tasks detailed within a course workbook, these being completed in the clinical environment supervised by appropriate clinical staff. A final session covers aspects that have been highlighted as problematic. Assessment includes a pre and post course written exam and an end-of-course OSCE, the latter requiring demonstration of key assessment and treatment skills and basic life support techniques.

This approach to training and assessment offers an opportunity for students to rehearse clinical assessment and management skills within a safe training environment combined with specific supervised practice on the wards, and the repetition available reinforces these skills prior to subsequent assessment. The assessment methodologies are similar in nature and detail to how procedural skills are assessed within the Foundation Programme once qualified. There are also clear opportunities to expand this training and assessment approach related to acute care skills within specialised areas of practice such as obstetrics, paediatrics, and health care of the elderly.
Hull York Medical School Final Year Examination

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The Hull York Medical School course is 5 years, system based, spiral, PBL and outcomes based. The first cohort is in their fourth year. Summative examinations in final year consist of written and clinical examinations. Written examinations are taken in March and clinical examinations, after a further period of clinical experience, in May. Written examinations are modified essay questions (MEQ) based around common management scenarios.

The clinical examination consists of two parts: observation of clinical practice and an OSCE. The first is based upon the Leicester Assessment Package for postgraduates, modified at Leicester and Warwick universities for undergraduates and used successfully for a number of years. The format closely reproduces the clinical consultation using real patients. Students are observed consulting with a series of patients, taking a history and performing a physical examination over 15 to 20 minutes. They then have a similar period on their own to construct a problem list and management plan. They then discuss their findings, examine any investigations available, explain the problem to the patient and negotiate a management plan. The examination is sequential; students see 4 patients on the first two days, and those not entirely satisfactory (about a third of the class) see 4 further patients on the third day. The cut point is based on the results of all 8. Examiners grade students according to 5 Categories of Competence and a number of Component Competencies within these categories. Three grades are “failing grades” numerical values are assigned to each and summed across all cases (80 grade points), so that the higher the score, the poorer the candidate. This can be compared to a driving test, where sufficient accumulated errors lead to failure.

There are approximately 12 OSCE stations, which concentrate on difficult consultation skills and some procedural skills. Results are scored in a similar way and results combined.
Ethics and Law in Finals: An EMQ to test what is worth testing

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Problem
Ethics and Law is so different from other parts of the medical curriculum that it is difficult to devise examinations in the same format. Questions that fit most readily into the standard EMQ format do not test the kinds of analytic, reflective and practical skills that should be taught in this strand of the curriculum.

Aim
To devise questions in EMQ format that will test not only candidates’ familiarity with legal and professional standards, but their ability to apply them – and recognise deviations from them – in clinical contexts.

Format
The five questions take the form of short scenarios, each involving a practical decision by a doctor. Candidates are asked to say whether that decision is or is not compatible with current legal and professional standards, and to give the reason why. The ten possible answers take the form ‘YES, because……’ or ‘NO, because……’. A mark requires both elements to be correct.

Outcome
Analysis of the results shows good differentiation between candidates and scores generally in line with those of the same candidates in the clinical questions.

Work in progress
Although these questions are effective they are extremely difficult and time-consuming to construct, because of the need for considerable overlap in the answer set. Enough of the answers must be plausible but wrong answers for each of the questions. Work is currently progressing on a grid on which can be entered (continuously) essential knowledge, common mistakes, scenarios within and outside official requirements, and connections between all these elements. The hope is to generate an algorithm that will allow far more efficient production of questions of this kind.
Ethics and Law in finals: An OSCE below the surface

J Radcliffe Richards

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Problem
Good ethics and law teaching cannot be limited to current legal and professional requirements. Preparing students for the complexities of practice, and for future developments in medicine, involves developing skills of moral and practical reasoning. But ethics OSCEs limited to direct observation of behaviour can test only simple compliance with current rules.

Aim
To devise an OSCE that will test a deeper understanding of legal and moral issues, while fitting the pattern of the surrounding clinical OSCEs, using the same marking scheme, and retaining maximum objectivity.

Method
Ethics and Law is examined in a 10 minute station that constitutes one third of the Long Station OSCE covering the Professional Development Spine of the curriculum. It is presented as a structured viva, by a specialist, trained, examiner.

Format
The candidate reads a short scenario – based on a real clinical case – ending with a professional disagreement about how to act. The examiner then asks a series of specific questions in three categories, each category carrying equal marks:

1. Current legal and professional requirements relevant to the area covered in the scenario.
2. Difficulties involved in implementing these in clinical practice. Candidates are expected to recognize difficulties of interpretation (e.g. how to interpret ‘best interests’), and of implementation (e.g. family and peer pressure).
3. Identifying the roots of the disagreement between the doctors involved. The scenarios make it clear that the most plausible disagreement is about values – ideas about what matters – even though this may be disguised as a scientific/clinical dispute.

Outcome
Examiners report that the test does effectively distinguish between candidates, and external examiners comment very favourably. The GMC inspection last year specifically commended this OSCE for its innovation.