A Short Guide to Creating the
OSCE Station Mark Sheet

THE UNIVERSITY of EDINBURGH

Dr Mark Grubb mark.grubb@btinternet.com
Dr Donald Thomson d.m.thomson@ed.ac.uk
Professor Helen Cameron helen.cameron@ed.ac.uk
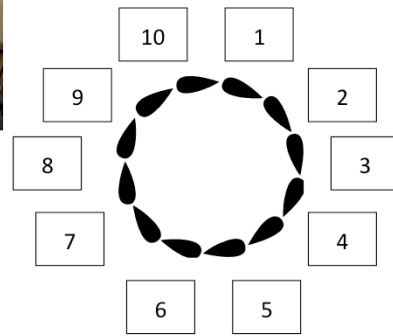August 2014

cme | centre for medical education

This set of slides should be read in conjunction with the worked examples of the station design documents that you should have received along with this talk.

The workshop will build on this foundation of knowledge – allow you to try out your ideas on designing a station – then test it out.

I'm assuming there's a lot of experience of OSCEs – but just to ensure we've all got the same ideas in our minds here are some pictures of an OSCE in Malawi illustrating an OSCE set-up and an OCE plan with 10 candidates going around 10 stations.

Usually a carousel of 5-10min stations with perhaps some rest stations to accommodate more candidates per carousel, and sometimes including double stations linking two tasks – and in which case there needs to be 2 of that double station.

Typical INTERACTIVE OSCE Stations	
History taking	Explanation and advice
Physical examination	Reassurance and support
Reporting findings	Prescribing
Clinical decisions e.g. diagnosis or next steps in management	Coping with demonstrable emotions e.g. anxious patient
Coping with psychological / social aspects	Ethical aspects e.g. gaining consent
Consulting with a carer, by telephone, or by interpreter	Procedures with mannequins

Here is a list of fairly typical interactive stations

History of Reliability in Assessing Clinical Competence

GMC (1947)
- 2 markers for clinicals & orals

JF Stokes (1967)
- Lack of correlation between judgements
- Importance of *observing* students
- Clarity of aim for each test e.g. short case
- Standardised 'patients'

Harden, R.M., Stevenson, M., Downie, W.W., Wilson, G.M., 1975. Assessment of clinical competence using objective structured examination. Br Med J 1, 447–451.

The development of the OSCE was triggered by the arguments of reliability and validity.

The rest of this slide is for 'further reading' for those who are interested.

Away back in 1947 the GMC raised concerns about intermarker variation in clinical exams

and John Stokes in 1967 after examining across the US wrote a report to the NBME making recommendations to address the lack of correlation.

GM Wilson (Professor of Medicine in Glasgow) and Ron Harden built on these findings – to create the OSCE in 1975

History of the OSCE

traditional 'long case'
- different students
- different patient problems
- different examiner standards
- 3 variables

structured & objective clinical exam
- different students
- *same* patient problems
- *same* examiner standards
- 1 variable

c_me centre for medical education

THE UNIVERSITY *of* EDINBURGH

So to summarise the development – it was all about moving from the long case where different problems, patients and examiners all confounded the reliability of the decisions about the students' competence – to the OSCE which focused on standardised conditions with structured questions and objective marking

How do you define a high quality OSCE?

passes/fails right candidates
- right things
- right way
- consistently

practical/cost effective
- resources
- cost
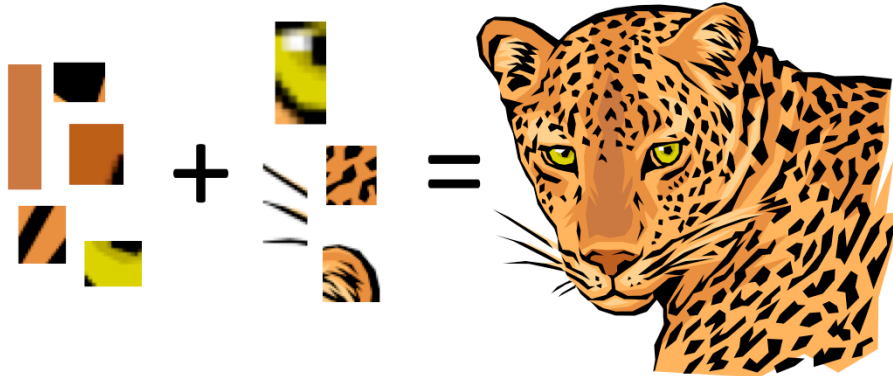- effort

promotes appropriate learning

provides feedback
- to students
- to teachers
- to the institution

enjoyable for examiners
acceptable to candidates

If I were to ask you to define a high quality OSCE you would probably say it's about the characteristics described on this slide.

And an important part of passing and failing the correct students is to measure the right thing. We can't assess everything so we want to sample carefully so we get an accurate idea of the big picture.

Sampling Matrix or Blueprint

Contexts of practice – specialties / acute / chronic care

TASKS / COMPETENCES	Renal	Cardio-vascular	Respiratory	Gastro-intestinal
History	X			
Physical examination		X		
Investigation			X	
Procedures				X

So we may start off with a simple matrix like this showing a range of skills e.g. history taking that are to be assessed in a range of contexts e.g. renal patients ………
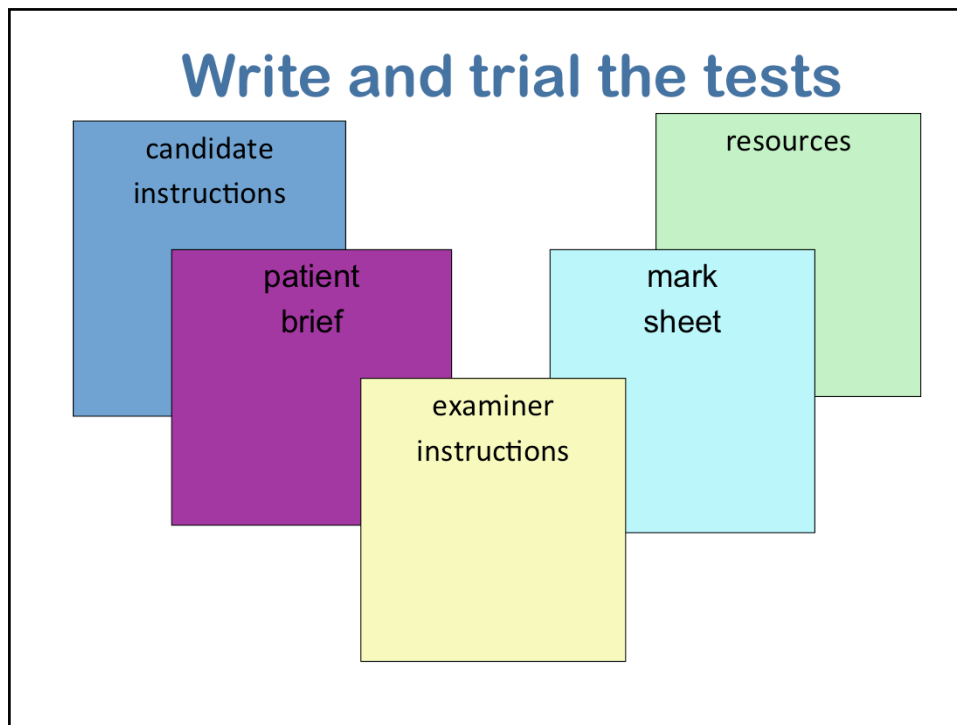
Developing the Sampling

	Renal	Cardio-vascular	Respiratory	Gastro-intestinal
History with **anxious patient**	X		X	
Physical examination & **reporting**		X		
Investigation & **diagnosis**			X	
Consent & procedure				X
Explanation & advice	X			

And develop the matrix with layers of complexity as appropriate.

Write and trial the tests

candidate instructions

resources

patient brief

mark sheet

examiner instructions

Then the next step is to carefully write and TRIAL the stations, keeping all the information about each station together – so that changes to the mark-scheme trigger corresponding changes to the others.

Overview of Steps in Preparing a Station

- Write the test and have it critiqued by others
- Trial the test
  – with junior doctors (need confidentiality clause)
  – as non-contributing station in summative OSCE
  – as formative station
- Set the standard
  – use Angoff method or Borderline method
- Assure the quality
  – train all 'patients' / examiners – standardise marking
  – ask external examiners regarding standardisation
  – gather feedback from students and examiners
  – measure the exam reliability

Once it has been decided what a station should address (according to the Learning Outcomes Matrix) this slide above gives an overview of the steps to take in designing and running an OSCE station.

When designing a station keep all the paperwork together so you can change all relevant documents at the same time. There are worked examples of these documents available and should have been sent out with this document. To design your own station you will be given a set of documents that are blank other than some guidance notes.

Candidate Instructions

Most of the rest of this talk is about the markscheme

- this is what tutors struggle with most

However for the candidate instructions please note

- **students with learning disabilities such as dyslexia are not usually given extra time in OSCEs**
- **the instructions need to be short (ideally 4-5 sentences without complex clauses)**
- **the time allowed for reading must be generous – approximately double the time an average student might take.**
- **students may have the instructions read to them if requested**

Much of the remainder of this presentation is about designing the markscheme since this is what most tutors struggle with.

The document 'OSCE Guidance and Worked Examples' that has been sent to you with this presentation will guide you through writing the other sheets.

However it is worth noting here that when writing the Candidate Instructions we need to keep in mind issues of accessibility and disability. It is uncommon for students with learning disabilities to be given extra time – so the instructions should be limited to 4-5 sentences without complex clauses or unnecessary information. Allow plenty of reading time, approximately double that required by the average student.

Therefore it would be ideal if there was 1 minute or so reading time between stations so that all students have the same time to perform the task itself. (If this minute can be afforded, examiners might be able to use it to write brief narrative notes of the outgoing student.

Exemplar OSCE Mark Sheet

Station title: Assessment of Gait						
Introduces self to patient: name and position (1 for each)	0	1	2			
Explains purpose of test: assess ability to get out of chair and walk along safely – will help decide what aids patient needs	0	1	2			
Explains stages of the test: rises/walk/turn/return/sit down (1 for each)	0	1	2	3	4	5
Conducts test safely:						
• Remains near patient	0		2			
• Ready to intervene	0		2			
• Observes closely for signs of unsteadiness	0		2			
• Communicates and reassures	0		2			

In this exemplar mark sheet (partial) the **Sections** are in **Bold** with the Items listed beside or below along with a detailed scoring system.

Cme centre for medical education   THE UNIVERSITY of EDINBURGH

It is best to write the mark sheet first since this clarifies the content of the station and then instructions to the simulated patients and students follow on more easily.

OSCE mark sheets look something like this with lines of text describing the expected actions by candidates and a range of available scores for each action, at the right hand side.

Note this station has been given a title – you may or may not want the candidates to see this …….

Creating the OSCE Mark Sheets
GENERAL SUGGESTIONS

The Mark Sheet is often the most difficult part of the task and determines what is written for candidates and examiners.

- Ensure **reading and task** can be done in allocated time
  - consider dyslexic students – '**plenty'** of reading time- allow double
- Ensure station **total marks** fit with course guidance
- **Decide which sections** to include
- Divide marks into **sections -** depending on LOs & clinical importance
- Then list the **items** for each section
- Allocate a **range of marks** for each item
- **Weight items** according to importance / safety
- Consider **bonus marks** for defined behaviours e.g. fluency
- If using Borderline methods for standard-setting devise independent **global grade** also

Cme centre for medical education

THE UNIVERSITY of EDINBURGH

This outlines the steps to take in designing the mark sheet.

History Stations - possible sections

- Introduction
- History of presenting complaint
- Other relevant history e.g. past medical history, social history, medication etc
- Communication skills **– see later**
- Bonus marks – **see later**
- Diagnosis or problem list if relevant
- Patient's perspective

Decide distribution of marks per section

When writing a history stations these are some possible sections to use.

Explanation and Advice - possible sections

- Introduction
- Explanation
- Advice
- Communication marks
- Patient's perspective

Decide distribution of marks per section

C_me centre for medical education

THE UNIVERSITY *of* EDINBURGH

And possible sections for Explanation and Advice

Examination – possible sections

- Introduction/permission to examine/hand hygiene
- Rapport with patient – guiding patient
- Positioning patient
- Segments of exam involved
- Bonus points - fluency/technique/order
- Diagnosis or problem list if appropriate
- Patient's perspective

Decide distribution of marks per section

$^{c}m_{e}$ centre for medical education

THE UNIVERSITY *of* EDINBURGH

And for physical examination.

Clinical Skills – possible sections

- Introduction
- Communication skills
- Preparation and checks
- Steps in the procedure
- Hygiene
- Safety-needles/clinical waste etc
- Patient's perspective

Decide distribution of marks per section

C$_m$e centre for medical education

THE UNIVERSITY *of* EDINBURGH

And practical clinical skills

Scoring Systems for OSCE Stations

TWO main ways of awarding scores

1. Divide the total station score among the sections – see examples of sections above
   - Give more weight to sections that are clinically important and/or have safety consequences

   Under each section list the points/items that the examiner should score
   - For example under History of Presenting Complaint from a patient with pneumonia you would list the questions/features you expect a student to explore / identify

   Award <u>range of scores</u> to each item within a section to reflect importance/safety and quality of performance

2. Alternatively whole sections might be marked by experienced examiners using broad criteria only (see slide on criteria for Communication) and without itemised scoring.
   - Such (partial) global marking is less commonly used especially if examiners are not content experts or if they have had little opportunity to standardise marking across all examiners.

This slide gives some more information on the differences between itemised scoring and section/domain scoring. There are many variations on these approaches but there is not time to cover them all in this OSCE workshop. The following slide demonstrates these terms further in an exemplar mark sheet.

Exemplar OSCE Mark Sheet

Station title: Assessment of Gait						
Introduces self to patient: name and position (1 for each)	0	1	2			
Explains purpose of test: assess ability to get out of chair and walk along safely – will help decide what aids patient needs	0	1	2			
Explains stages of the test: rises/walk/turn/return/sit down (1 for each)	0	1	2	3	4	5
Conducts test safely:						
• Remains near patient	0		2			
• Ready to intervene	0		2			
• Observes closely for signs of unsteadiness	0		2			
• Communicates and reassures	0		2			

In this exemplar mark sheet (partial) the **Sections** are in **Bold** with the Items listed beside or below along with a detailed scoring system.

Cme centre for medical education   THE UNIVERSITY of EDINBURGH

This example OSCE mark sheet can be used to consider itemised and section/domain scoring.

The designers have created some Sections: Introduction, Explanation of purpose, Explanation of stages of test, and Conducts test safely.

The first 3 sections are very short and have detailed marking instructions and the section on conducting the test has a list of clear steps - these types of instructions are referred to as ITEMS. Their detail makes it easy to mark in a standardised manner and may permit a non-specialist to mark the station. This approach is good for novice candidates who are learning to go through clinical tasks very systematically but may fail to recognise expertise since experienced practitioners may not follow such a predictable course in their practice.

Exemplar OSCE Mark Sheet

Station title: Assessment of Gait						
Introduction / Explanation : name and position; purpose of test for aids / discharge / support at home; steps in the test. (See examiner notes for more specific guidance)	0	2	4	6	8	10
Conducts test safely: remains near patient; ready to intervene; observes; communicates; encourages and reassures	0	2	4	6	8	

A mark scheme relying on Sections with criteria to guide marking. Alternatively a separate set of anchor statements could be used especially if the marking is for a domain such as Communication that weaves throughout the station.

cme | centre for medical education

THE UNIVERSITY of EDINBURGH

An alternative layout is to use Section or Domain marking.

The Sections might relate to the steps in the clinical task e.g. 1. Introduction/ Explanation   and 2. Conducting the test.

Domains however often relate to a group of skills that are unlikely to follow-on sequentially but instead are woven throughout the task e.g. 1. Communication skills 2. Physical examination skills   3. Hygiene and patient safety.

Each section or domain may have guidance notes on how to mark each on the mark sheet, OR alternatively the markers may be given a separate set of anchor statements that describe the characteristics of candidates in each of the sections or domains and relates these to the score or grade to be awarded.

In the Edinburgh MBChB most of the OSCEs use a mainly itemised marking scheme but in Finals the 'stations' are standardised short cases (double) marked using anchor statements.

Criteria for Communication Section/Items
(for any station)

What to give marks for?

- Patient-friendly language
- Open/closed questions
- Listening skills, understanding and empathy
- Asking about patient's ideas, concerns, expectations
- Structure, chunking, fluency
- Signposting the consultation
- Non-verbal communication
- Summarising

Cme centre for medical education

THE UNIVERSITY of EDINBURGH

You may decide to have a communication section as part of a History station or an Explanation and Advice station – or have a section/domain within a very different station such as a Physical Examination station.   The criteria listed above can be used to guide scoring – it is more difficult to standardise this type of marking.

**Criteria for Patient's Perspective
(for any station)**

What to give marks for?

- Did I get an opportunity to voice my worries?
- Did I get the opportunity to express my ideas, and expectations?
- Did I have enough opportunity to ask questions, did I feel listened to?
- Did I feel safe and comfortable?
- Did I feel respected?

It is common to include the patient's (simulated patient's) marks for OSCE stations where there is a patient, but currently in Edinburgh we don't do this in the clinical practice Finals. The slide suggests the sorts of criteria that patients and SPs are usually happy to comment on.

**Criteria for Bonus Marks
(for any station – if used)**

Bonus marks provide a means of differentiating between those students who mechanically go through the steps and those who appear to have practised and really know what they are doing. Some Schools do not use bonus marks.

What to give marks for?

• Fluency
• Rapport with patients
• Ability to be flexible according to clinical need
• Structure and fluency in any verbal answers

Bonus marks go some way to recognising the difference between a mechanical and a polished performance. The criteria should describe the components/behaviours that distinguish experts from novices.

Standard setting using a Borderline Method

Standard setting refers to a process adopted to set standards for a test. The pass score is the most commonly determined standard but it might also set the 'excellent' score.

A Borderline (Regression) Method is often used in OSCEs because it involves all the examiners in setting the pass score and it relies on the standard-setters observing real students' performances.

To use a Borderline (Regression) Method of standard setting all examiners must make a global judgement of each student's performance in the station (*regardless of the score achieved*).

Examiners are therefore asked to rate the student's performance as Fail / Borderline Fail / Borderline Pass / Pass / Good / Excellent at the bottom of the mark sheet. (Sometimes fewer grades.)

This slide may be of interest to those who have dealt with standard-setting in other contexts.

Standard-setting is beyond the scope of this talk and workshop but it is important to understand that when designing an OSCE station there needs to be a method of setting the pass score. It cannot routinely be 40 or 50 or 60 but changes according to the difficulty of the exam. In Edinburgh we use both the Modified Angoff and the Borderline Regression Method to set pass scores.

Taken to extremes you could be failing a student on a test of 1 sample of work i.e. the 1 item or 1 station the student fails yet the OSCE and most assessments rely on a good sample of work across the whole curriculum to determine the overall result reliably. The latter approach is justified by the fact that performance across different domains or activities is highly correlated. In addition exams are not real life and colleagues, information sources and cues present in the real situation may be lost in simulated exam settings. At a practical level there may be no end to the list of 'crucially' important separate pieces of knowledge or skills that students must grasp.

A Short Guide to Creating the OSCE Station Mark Sheet

THE UNIVERSITY of EDINBURGH

Dr Mark Grubb mark.grubb@btinternet.com
Dr Donald Thomson donald.thomson@ed.ac.uk
Professor Helen Cameron helen.cameron@ed.ac.uk

August 2014

centre for medical education

This set of slides should be read in conjunction with the worked examples of the station design documents that you should have received along with this talk.

The workshop will build on this foundation of knowledge – allow you to try out your ideas on designing a station – then test it out.