Education Using an assessment centre to select doctors for postgraduate training in obstetrics and gynaecology

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Key content:

- An assessment centre is a selection technique that contains multiple job-related assessments (e.g. group exercises, simulations, written exercises and interviews).
- Research shows that assessment centres are an excellent way of identifying the job applicants who are most likely to be successful in the job.
- In parts of the UK, assessment centres have been used to select doctors for training as general practitioners and have been shown to exhibit good predictive validity.
- We describe the design and implementation of an assessment centre for selecting doctors into the postgraduate training programme in obstetrics and gynaecology in the South Yorkshire and South Humber Deanery. This is the first time this has been attempted in the UK.

Learning objectives:

- Understand how an assessment centre is developed.
- Understand the rationale for the use of assessment centres in the selection process.
- Be in a position to set up an assessment centre for local recruitment.

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Introduction

The interview is the mainstay of the selection process throughout most doctors' careers. Properly designed and executed interviews help employers to make reasonable selection decisions.[1–5] Modernising Medical Careers, however, emphasises the importance of robust processes for selection from Foundation to Specialty training programmes and this is an important area of work for all Royal Colleges.[6]

Selection procedures can be significantly improved through the use of a combination of job-related selection methods in an assessment centre.[1–5] In the UK, competency-based assessment centres have been used to select trainee general practitioners and have shown good predictive validity. They reduce the number of 'failing' trainees and the need for remedial/targeted training.[7,8] They have not yet been widely used to select doctors for postgraduate training in secondary care medicine. We report on the development and implementation of an assessment centre to select doctors for postgraduate training (senior house officer [SHO/ST1] posts) in obstetrics and gynaecology in the South Yorkshire and South Humber Deanery.

Reasons for using assessment centres in selection

An assessment centre contains a number of job-related assessments or exercises. These usually include a structured interview but can also include written exercises, group discussions and work-related simulations. The best assessment centres are competency-based.[5,8] These are developed from a thorough analysis of the job for which candidates are being selected. The job analysis plays a crucial role in the development of an assessment centre: it identifies the knowledge, skills and abilities (that is, the competencies) that need to be elicited by the assessment centre exercises.[9,10]

Assessment centres exhibit excellent reliability and validity and provide a more thorough and less biased assessment of the candidate than do interviews.[5] Interviews require candidates to provide self-reports of their qualities. Assessment centres require them to demonstrate their aptitude and attainment, usually to several different trained assessors. Candidates also appreciate assessment centres: they see them as exacting but fair.[11,12] These benefits can offset the design and implementation costs of the assessment centre.[5] This is especially true given the likely costs associated with poor selection in medicine.[13]

In this paper we describe a multi-method, multi-source job analysis that was carried out to identify the attributes that needed to be assessed during selection for training posts in obstetrics and gynaecology. We then report on the development and piloting of assessment centre exercises designed to assess these attributes. Finally, we describe the first implementation of an assessment centre for SHO/ST1 recruitment in obstetrics and gynaecology.

Job analysis in obstetrics and gynaecology

Three methods were initially used for job analysis.[9,10] These were:

(i) observation of doctors' practice
(ii) the opinions of expert focus groups
(iii) patient interviews.

The observers, focus group facilitators and interviewers who conducted the analysis were all occupational psychologists from City University, London. This multi-source, multi-method job analysis was carried out using a similar methodology to that successfully used to analyse the work of general practitioners.[8] Informed consent was obtained from all participants.

Observation of the practice of consultants ($n = 4$) was carried out over the course of several days. Randomly selected doctor–patient and doctor–support staff interactions were observed. Four focus groups were carried out: two with consultants ($n = 5$) and specialist registrars ($n = 9$), one with nurses ($n = 6$) and one with midwives ($n = 6$). All participants had a minimum of 1 year in grade. Thirty-four interviews were carried out with patients.

Three hundred and forty-seven descriptions of doctors' behaviour were collected from these three activities and were classified into competency groups by two independent pairs of occupational psychologists. This was the same technique as that used to identify competencies for general practitioners.[8] Inter-coder reliability was acceptable (kappa 0.67). Fourteen competencies were identified **(Table 1)**.

To validate the results of the job analysis, a questionnaire was then completed by a sample of 21 specialist registrars with a mean length of service of 2.81 years (SD 1.40) and 56 consultants with a mean length of service of 9.22 years (SD 6.88) from the Trent Region. In the questionnaire, the competencies and examples of their behavioural indicators were presented as in **Table 1**. Each participant was asked to rate the importance of each competency at SHO grade in obstetrics and gynaecology on a five-point scale (one for 'little' to five for 'a lot' '). It is acknowledged that the relative importance of the competencies will change as the doctor progresses through training.

Competency domain name and example observable behavioural indicators	Mean importance at SHO grade (SD) 1 = minimal; 5 = major
Professional integrity and respect for others (PIR) The doctor is open and honest with patients and colleagues. He/she treats patients and colleagues with respect and without prejudice. He/she takes responsibility for difficult decisions and does what is best for the patient. He/she is nonjudgemental and shows respect for the patient's privacy and dignity.	4.47 (.76)
Empathy and sensitivity (ES) He/she reassures an anxious patient through a positive approach and appropriate actions. He/she is sensitive to the patient's feelings. He/she wins the patient's confidence and makes them feel comfortable. He/she understands the patient in the context of their family.	4.41 (.77)
Communication skills (CS) He/she is able to discuss psychosocial problems with the patient. He/she uses open questions, and 'feeler' questions as the patient may be shy/embarrassed to discuss symptoms. He/she uses simple, clear and appropriate language in both oral and written communication.	4.26 (.85)
Personal attributes (PA) He/she is conscientious, approachable, kind, courteous and honest. He/she is tactful and considerate. He/she demonstrates psychomotor abilities such as effective manual dexterity, and good hand-eye coordination suitable for training.	4.12 (.91)
Team work (TW) He/she is supportive to colleagues at any grade, acknowledges their efforts/skills. He/she actively seeks out information from other professionals, and works in partnership with them.	3.95 (.88)
Learning and personal development (LPD) He/she is motivated and committed towards self-directed learning, and critically reflects on and evaluates his/her own work. He/she acknowledges his/her own limitations, and acts on feedback. He/she is able to evaluate critically the medical literature.	3.76 (.93)
Coping with pressure (CP) He/she remains calm under pressure, is able to deal confidently with emergency situations and to prioritise and make decisions quickly. He/she is prepared to seek help, but takes control when it is appropriate.	3.67 (.97)
Vigilance and situational awareness (VSA) The doctor is alert to symptoms and signs suggesting that a patient's condition might progress or de-stabilise rapidly. He/she picks up subtle changes in clinical condition. He/she thinks laterally in clinical situations.	3.47 (.97)
Clinical/technical knowledge and expertise (CTK) The doctor is able to identify risks and options for treatment. He /she is proficient in performing basic surgical procedures. He/she provides clear and accurate explanations to patients and relatives. The doctor has a good range of up-to-date clinical skills.	3.24 (1.08)
Legal, ethical and political awareness (LEP) He/she is aware of the ethical and legal implications of actions with regard to confidentiality, informed consent and participation in clinical trials	3.14 (1.15)
Personal organisation and administration skills (POA) The doctor establishes and maintains an effective system of organisation, and appropriately prioritises conflicting demands. He/she is able to recognise the urgency of cases, and manages time effectively to allocate sufficient time for tasks.	3.12 (.92)
Problem solving and decision making (PS) The doctor keeps an open mind and considers all the available evidence (i.e. doesn't assume and uses probing questions to move beyond the surface-level information). He/she is rational and logical in decision-making, and demonstrates critical thinking when applying current medical knowledge.	3.00 (.95)
Managing others (MO) The doctor provides leadership to juniors and manages/mentors them effectively. He/she works effectively with other health professionals.	2.43 (.97)
Teaching (TE) The doctor shares knowledge and skills with others. He/she is able to prepare and deliver teaching effectively.	2.33 (.93)

Table 1

The importance of the competencies identified in job analysis, and examples of their behavioural indicators

The majority of competencies received mean ratings above the scale mid-point of 3 **(Table 1)**. The competencies 'teaching' and 'managing others' received mean importance ratings below the scale mid-point and, therefore, the decision was taken that they would not be directly assessed at selection. The competencies receiving the highest mean ratings were those relating to professional integrity and interpersonal skills (empathy and sensitivity, communication skills, personal attributes and teamwork). 'Clinical/technical knowledge and expertise' was not rated highly but it should be noted that these are competencies for a doctor entering a training programme in the specialty.

Development and piloting of selection methods

The results of the job analysis indicated that candidates should be assessed in a variety of contexts: a group or team environment, a simulated consultation, a practical task, a task of prioritisation and critical appraisal of medical information. The South Yorkshire and South Humber Deanery's programme director worked with several RCOG College Tutors to devise at least one assessment centre exercise for each of these areas.

Six exercises were trialled during this development work. The content of each was necessarily generic and suitable for a candidate leaving the F2 year. It also needed to be directly related to work carried out in obstetrics and gynaecology. The exercises were:

- a 30-minute small group (up to five participants) discussion of issues relating to practice in the specialty
- a 20-minute simulated consultation (which also required candidates to demonstrate their ability to carry out a simple clinical diagnostic test)
- a 30-minute written exercise requiring candidates to prioritise five tasks that presented themselves simultaneously
- a 25-minute written data interpretation exercise (used only in the second pilot to assess the competency 'learning and personal development')
- two practical tasks (lasting 30–45 minutes each) during which candidates were trained in surgical tasks and had their performance assessed before and after training. These were not used in the assessment centre that was eventually implemented (see Discussion and conclusions).

Table 2

Exercises used in the assessment centre and the competency domains assessed by each of them (for explanation of abbreviations see **Table 1**)

Exercise and summary of its content	Time	Competency domains assessed										
		ES	CS	TW	CP	PIR	PS	VSA	POA	CTK	LPD	LEP
Simulated consultation (including carrying out simulated diagnostic test)												
Consultation with a patient (played by trained medical actor)	20 minutes	✓	✓		✓	✓	✓	✓		✓		
Candidate is required to explain an investigative procedure and deal with the patient's questions/concerns												
The medical actor exhibits three emotions: fear, confusion and frustration												
The medical actor delivers a series of prescribed key statements to express these three emotions												
When the consultation finishes, the medical actor leaves the room and then the candidate completes the simulated diagnostic test on a mannequin												
Written prioritisation exercise												
Candidates are presented with five tasks to prioritise	30 minutes		✓	✓			✓		✓	✓		
Tasks include administrative tasks, clinical tasks and discussions with colleagues												
The candidate is required to decide upon an order of priority for the tasks and to provide a rationale for the prioritisation												
Assessment is based on content of the rationale for the prioritisation of the tasks as well as 'correctness' of solution												
Group discussion												
A group of 3–4 candidates discusses 3–4 scenarios each requiring the identification and discussion of ethical issues	25 minutes (3 in group) or 30 minutes (4 in a group)	✓	✓	✓		✓	✓		✓			✓
Each candidate is allocated one of the cases to prepare for the discussion in the first five minutes of the exercise												
Candidates are required to discuss all scenarios in the time allowed												
Assessment is based on content of the discussion as much as it is on the 'correctness' of the agreed solutions												
Structured interview												
Standardised questions related to training in the specialty and the candidates' aspirations	15 minutes	✓	✓		✓			✓		✓		
Data interpretation												
Candidates are presented with an extract from a research paper. This contains a summary of the aims of the research and two tables presenting the results of the data analysis carried out in the study. Candidates are asked ten questions about the meaning of the results of the data analysis. Each question requires a short, factual answer	25 minutes									✓		
Candidates are then required to use the information presented in the paper to decide whether they would change their practice based on the outcome of the study												

Two pilot assessment centres were carried out, to develop a combination of exercises that allowed for the assessment of all relevant competencies. Seven consultants in obstetrics and gynaecology and three occupational psychologists observed and recorded participants' performance during the pilot assessment centres.

In the first pilot assessment centre (May 2004), seven current SHOs in the South Yorkshire and South Humber Deanery completed the exercises. Feedback from assessors and participants in this assessment centre was used to modify the exercises for trialling in a second pilot assessment centre (December 2004). This second assessment centre was carried out alongside the Deanery's existing interview-based selection process. Twelve candidates for SHO posts volunteered to be participants for this assessment centre but their performance in the exercises was not used in the selection process.

Detailed written records were kept of participants' performance during the exercises. The competencies assessed by each exercise were identified by categorising examples of behaviour in these written records within the competencies identified in the job analysis (see **Table 2**). These data were also used to identify the behavioural markers to be used in the scoring of the group exercise, the simulated consultation and the written prioritisation exercise **(Figure 1)**.

Implementation of the assessment centre

Assessment centre exercises

The assessment centre consisted of five exercises **(Table 2)**. A structured interview was developed to expand the competencies not adequately assessed by the other exercises. The combination of exercises allowed the more important competencies **(Table 1)** to be assessed more frequently **(Table 2)**.

Assessment context

All NHS Trusts within the South Yorkshire and South Humber Deanery who were recruiting doctors for rotational career SHO training posts in obstetrics and gynaecology agreed to assess candidates through the assessment centre procedure in June 2005. Therefore, a single assessment centre replaced panel interviews that would have otherwise been carried out separately in five Trusts. Seven posts were available.

Assessor training

All eight assessors held consultant posts in obstetrics and gynaecology. Six were College Tutors and one was the Programme Director. Some of these

assessors were familiar with the exercises and scoring processes because they had been involved in the pilot assessment centres or had been assessors in the general practitioner selection process in the South Yorkshire and South Humber Deanery. Other assessors received up to three hours of face-to-face training in the use of assessment materials (in small groups or individually) from an occupational psychologist (RR). The training focused on the proper use of materials and included guidance on how to make reliable and valid evaluations. All assessors were provided with a training manual to support their own self-directed learning.

Assessment centre logistics and evaluation of candidates

Sixteen candidates attended the assessment centre, which lasted 8.5 hours. The five assessments were run in parallel in five different rooms. The order of presentation of the exercises differed from candidate to candidate. Two consultants carried out the interview but all other exercises were assessed on a one candidate to one assessor basis. Each candidate was assessed by at least five different assessors during the day. Candidates' performances in the interview, simulated consultation, written prioritisation exercise and group exercise were scored using the process described in **Figure 1**. The data interpretation exercise was marked by comparing the candidate's response to a set of 'correct' answers agreed by two of the assessors.

For each candidate, all exercise scores were entered onto a separate scoring matrix. This matrix was similar to **Table 2**, with each tick being replaced by a score from one to four (see **Figure 1**). This matrix was used as a basis for the discussion of each candidate's performance. Each candidate was discussed during a 90-minute closing session facilitated by the Programme Director. This discussion focused on two sets of information: the candidate's performance in each exercise, and between-exercise consistencies and inconsistencies in the candidate's competency scores.[14] Once all candidates had been discussed, their exercise and competency scores were re-examined to identify the best seven candidates according to their performance across different exercises. When discussing whether to offer a candidate a job, only the Programme Director and assessors who had observed that candidate contributed to the decision-making process.

As each candidate has been assessed over several competencies the trainers will know the trainee's strengths and weaknesses at the beginning of their training. For example, a trainee may be strong in interpersonal skills, exemplified by good communication skills and empathy, but be poor in technical abilities. This enables training to be targeted from the outset.

During the exercise
(Stages 1 and 2 not applicable for written prioritisation exercise)

Stage 1: Observation of candidate
Each assessor monitors both the verbal and non-verbal behaviour of one candidate.

Stage 2: Recording of candidate behaviour
Assessors make notes of what the candidate says and does as it happens. These are *factual observations*. Inferences are not made about what the behaviour means.

After the exercise
(Stage 3 and Stage 4 take 15–20 minutes in total)

Stage 3: Classification of observations

Assessors identify (within their recorded observations or answers) instances (behavioural indicators) of the various competencies assessed by the exercise. Each observation is classified (e.g. a positive indicator of communication skills is allocated a code CS+; a negative indicator for coping with pressure as CP– etc).

Assessors tally the positive and negative behaviours (on the scoring sheet) that they have observed for each competency. Recorded observations can be classified within more than one competency domain.

Stage 4: Evaluation of candidate performance

Each competency is then given a score on a four point scale which is anchored as follows:

- 4 (good to excellent) = Strong display of positive behavioural indicators. Few negative indicators displayed, and these considered minor in status.
- 3 (satisfactory) = Satisfactory display of positive behavioural indicators. Some negative indicators displayed but not decisively.
- 2 (areas of concern) = Limited number of positive behavioural indicators displayed. Many negative indicators displayed, one or more decisively.
- 1 (poor) = Little evidence of positive behavioural indicators. Mostly negative indicators displayed, many of which decisively.

Considering the competency scores together, the assessors make a judgment on overall exercise performance. A score of 1–4 (on the scale above) is then given for the exercise overall, together with a brief justification of the overall score.

Figure 1
The scoring process for simulated consultation, group exercise and written prioritisation exercise

Candidates' perceptions of the assessment process

After the assessment centre, candidates were asked to complete a questionnaire that asked them to compare the assessment centre to other selection processes they had experienced in their medical career. The majority gave favourable feedback. Candidates indicated that the assessment centre gave them either slightly more ($n = 5$), more ($n = 7$), = or much more ($n = 3$) opportunity to demonstrate their abilities than other medical selection processes they had experienced. They indicated that the content of the selection centre was slightly more ($n = 3$), more ($n = 10$) and much more ($n = 2$) relevant to work in obstetrics and gynaecology. Eleven agreed and four strongly agreed with the statement 'the content of the selection centre seemed appropriate'. Twelve agreed and one strongly agreed with the statement 'Overall, I was given a good opportunity to show my skills'.

Discussion and conclusions

The job analysis presented in this paper suggests that a multi-method approach to selection is needed to assess fully the suitability of doctors for

specialist training in obstetrics and gynaecology. An assessment centre provides a greater breadth and depth of information about candidates than does a conventional interview. It also provides a way of assessing candidates' aptitude for dealing with the different challenges presented to doctors working in the specialty.

The assessment of 16 candidates in one day shows that high-volume recruitment is possible using an assessment centre. Economies of scale were achieved by consolidating the recruitment processes for five NHS Trusts into one assessment centre. As assessors become skilled in more than one exercise, the candidate–assessor ratio can also be increased.

Assessment centres provide a wealth of information that can be used to guide the development of doctors as they begin their career in a specialty. For example, a candidate's performance across an assessment centre may generally be strong but their conduct in a particular exercise may highlight that they have particular training needs. When providing feedback on the assessment centre, many candidates commented that the experience had helped them to learn something about their strengths and weaknesses.

Candidate perceptions of the fairness of the assessment centre were extremely positive. Previous research indicates that favourable perceptions of the selection process are linked to favourable perceptions of the recruiting organisation.[11,12] Managing candidates' perceptions of the process becomes especially important when strong candidates might be able to choose between more than one employing deanery.

During the development of the assessment centre we trialled a number of methods for assessing how easily candidates could be trained in practical skills. This proved problematic: we found it difficult to identify tasks directly relevant to the specialty on which candidates' performances would not be influenced by their previous experience of surgical procedures. As a result, we are trialling assessments of practical abilities (hand–eye coordination and dexterity in a non-clinical setting) to assess their validity and utility. We would welcome any comments or suggestions on this aspect of our work.

Our experiences indicate that it is feasible to conduct an assessment centre for the SHO/ST1

recruitment process. It will take time to establish formally its predictive validity. What is already clear is that the method provides an in-depth analysis of candidates' suitability for training posts. This may be particularly important with the introduction of the 'run through grade' as there may be only one opportunity to select candidates for speciality training.

Acknowledgements

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