Using job analysis to identify core and specific competencies: implications for selection and recruitment

Fiona Patterson,[1] Eamonn Ferguson[2] & Sarah Thomas[3]

OBJECTIVE Modern postgraduate medical training requires both accurate and reliable selection procedures. An essential first step is to conduct detailed job analysis studies. This paper reports data on a series of job analyses to develop a competency model for three secondary care specialties (anaesthesia, obstetrics and gynaecology, and paediatrics).

METHODS Three independent job analysis studies were conducted. The content validity of the resulting competency domains was tested using a questionnaire-based study with specialty trainees (specialist registrars [SpRs]) and consultants drawn from the three specialties. Job analysis was carried out in the Yorkshire and the Humber region in the UK. The validation study was administered with additional participants from the West Midlands and Trent regions in the UK. This was an exploratory study. The outcome is a set of competency domains with data on their importance at senior house officer, SpR and consultant grade in each specialty.

RESULTS The study produced a model comprising 14 general competency domains that were common to all the three specialties. However, there were significant between-specialty differences in both definitions of domains and the ratings of importance attached to them.

CONCLUSIONS The results indicate that a wide range of attributes beyond clinical knowledge and academic achievement need to be considered in order to ensure doctors train and work within a specialty for which they have a particular aptitude. This has significant implications for developing selection criteria for specialty training. Future research should explore the content validity of these competency domains in other secondary care specialties.

KEYWORDS *education, medical, graduate; anaesthesiology/*education/standards; obstetrics/*education/standards; paediatrics/*education/standards; *school admission criteria; clinical competence/*standards; multicentre study [publication type]; England.

*Medical Education 2008: **42**: 1195–1204*
doi:10.1111/j.1365-2923.2008.03174.x

INTRODUCTION

As a result of the Modernising Medical Careers (MMC) initiative in the UK, fundamental changes in postgraduate medical training have placed more emphasis on selecting doctors into specialty training.[1,2] Selection criteria for all specialties were standardised in the UK for 2007, and were described in the specialty-specific Person Specifications.[2] This important and fiercely debated initiative must be informed by an empirically driven evidence base. This paper reports on an analysis used to facilitate the development of selection systems for entry into specialty training. The model reported is based on the application of job analysis techniques to medical selection. We present these data to encourage further debate within the wider medical and scientific community, with the aim of developing an agenda for future research.

To achieve a robust selection system, the most crucial step is to identify both the core skills (competencies)

[1]Department of Psychology, City University, London, UK
[2]School of Psychology, University of Nottingham, Nottingham, UK
[3]Yorkshire and the Humber Postgraduate Deanery, University of Sheffield, Sheffield, UK

Correspondence: Professor Fiona Patterson, Organisational Psychology, City University, Northampton Square, London EC1V 0HB, UK. Tel: 00 44 115 940 7978; Fax: 00 44 115 940 7978; E-mail: f.patterson@city.ac.uk

Overview

What is already known on this subject

Recent changes in postgraduate training place more emphasis on selection practices. More focused information is needed to guide career choices for specialty training.

What this study adds

Behavioural competencies that underpin effective performance in three secondary care specialties have been identified and validated. This research is unique in combining the perspectives of qualified doctors, trainees, health care professionals and patients. Important differences in priorities between specialties, contributing to effective performance in training, are identified.

Suggestions for further research

Job analysis methodology might be applied in other specialties to identify selection criteria. The information gathered in postgraduate training might be used to more closely inform undergraduate selection practices.

common to all specialties and the competencies that discriminate between specialties.[3,4] Job analysis techniques form the basis of developing any selection system. Classifying the combination of core and specific competencies ensures that both generic and specialty-specific skills are recognised. This identification process informs the development of selection criteria (in addition to aiding careers counselling for trainees) and is the basis of a reliable, valid and legally defensible selection system.[5] This paper reports data identifying core and specific competencies for three different secondary care specialties: anaesthesia; obstetrics and gynaecology, and paediatrics. The methodology can be adopted for other specialties.

Four key questions are addressed in this paper:

1 What are the competency domains observed across various specialties?
2 How important is each domain for the senior house officer (SHO), specialist registrar (SpR) and consultant grades?
3 Are certain competency domains perceived as more important *within* a particular specialty?
4 Are there differences *between* the specialties in the importance given to each competency domain?

METHODS

Design and procedure

The job analyses were conducted within a two-phase programme of research. Phase 1 was qualitative and based on a previously described reliable and valid procedure for job analysis in medicine.[3] Results from Phase 1 were applied to develop a questionnaire that was used to conduct the second phase of the job analyses, in Phase 2.

As the aim was to explore core and specialty-specific competencies in secondary care, three specialties were examined: anaesthesia; obstetrics and gynaecology, and paediatrics. These were chosen because they are all hospital-based and each specialty differs from the others in terms of the nature of interactions with patient groups and the amount of time committed to ongoing patient care. For example, both obstetrics and gynaecology and anaesthesia are craft specialties, whereas paediatrics may be classed as a medical specialty. In anaesthesia, a relatively lower proportion of patient contact time is spent in outpatient clinics.

Phase 1. Qualitative job analysis

A multi-source, multi-method job analysis was carried out using a similar methodology to that used in our previous work to identify competency domains for general practitioners.[3,6,7] Four job analysis methods were conducted in each specialty including:

1 *observation*, by a trained occupational psychologist, of the practice of consultants and SpRs in each specialty ($n = 26$) over a total of 4.5 days;
2 *critical incidents focus groups* with doctors (five groups with a total of 13 consultants and 26 SpRs), and focus groups with other health care professionals relevant to each specialty, including nurses, midwives, operating assistants (six groups with a total of 25 professionals);
3 *critical incidents interviews with doctors* ($n = 14$) *and with patients* ($n = 91$), and

Table 1 Sampling and methods for Phase 1 research

Method*	Design	Anaesthesia	Obstetrics and gynaecology	Paediatrics
Observation of practice	Behavioural observation of randomly selected doctor–patient and doctor–support staff interactions; 1.5 days per specialty. Sample for each specialty included males and females. Consultants had minimum 5–10 years experience; SpRs had 2–4 years experience			
Consultants		*n* = 3	*n* = 4	*n* = 4
SpRs		*n* = 4	*n* = 6	*n* = 5
Focus groups	Critical incidents technique focus groups; all participants had minimum of 2 years' experience			
Doctors		Not available because of practical constraints. Therefore, one-to-one interviews conducted (see below)	2 groups: consultants (*n* = 5; 4 male, 1 female, 10.2 years) and SpRs (*n* = 9; 7 female, 2 male, 2.7 years)	3 groups: consultants (*n* = 8) and 2 groups of SpRs (*n* = 17)
Other healthcare professionals		3 groups: ITU/pain clinic nurses (*n* = 4; female, 14 years); operating department assistants (*n* = 2; male, 10 years); clinical and anaesthetic services managers (*n* = 3; female, 17 years)	2 groups: nurses (*n* = 6; female, 8 years) and midwives (*n* = 6; female, 18 years)	1 group: paediatric nurses (*n* = 4; 16 years)
Interviews	Critical incidents technique interviews; sample of patients attending outpatients clinic			
Doctors		Consultants (*n* = 9; 8 male, 1 female, 8 years) SpRs (*n* = 2; male, 2 years) Surgeons (*n* = 3; male, 9 years)		
Patients		*n* = 25 (mean age 49 years, range 22–73 years; response rate 86%; English not first language = 1)	*n* = 34 (mean age 44 years, range 19–78 years; response rate 76%; English not first language = 2)	*n* = 32 (mean age of child 8 years; response rate 87%; parents/carers: 31 female (mean age 33 years), 16 male (mean age 36 years); English not first language = 4

* Convenience samples were used throughout
SpR = specialist registrar

4 reviews of *research literature* (e.g. MEDLINE searches) and *specialty training materials* (Royal College curriculum documents).

The purpose of these analyses was to identify competency domains relevant to each specialty in addition to those common across all three. The sampling and methods for Phase 1 are described in Table 1. Sampling was designed to achieve a wide range of experience and continued until constructs were repeated and no new constructs were uncovered. This is standard practice in the literature[4] and produces a consensus model.

Phase 2. Quantitative job analysis

This phase used a questionnaire to help specify the nature of the jobs as defined by experts. To adhere to ethical guidelines and local requests, the study was anonymised and the only demographic information requested referred to number of years in grade.

Design and procedure

Two groups of participants who varied in terms of job grade (SpRs and consultants) were asked to provide ratings for three levels of job grade: SHO, SpR and consultant. Our purpose was to examine if job grade (SpR and consultant) influences how the competency domains are rated at the different levels (SHO, SpR and consultant). The aim was to achieve a competency model with consensus across grades.

Sampling procedure

The sampling procedure was designed to achieve large sample sizes with relatively equal numbers of participants from each specialty. In job analysis, the approach is to examine expertise across the domain of interest and to target a sufficient sample to ensure that perceptions reflect as wide a consensus as possible. We used years of experience in post to index this aspect.

Questionnaires were distributed to training programme directors (in the host region) to be administered to all consultants and SpRs in training within the three target specialties (n = 392). The initial number of SpRs and consultants in obstetrics and gynaecology (n = 89) and paediatrics (n = 89) were small relative to the number in anaesthesia (n = 214), so questionnaires were administered to all existing SpRs and consultants in two additional regions (Trent and West Midlands in the UK). Questionnaires were distributed in the Trent region to SpRs and consultants in obstetrics and gynaecology (n = 105) and in the West Midlands to SpRs and consultants in paediatrics (n = 255). We referred to empirical evidence that an anonymised survey of this kind, which carried no personalised letter to participants and involved no follow-up, but which used pre-paid envelopes for returns, should achieve a maximum response rate of 20%.[8]

Sample

A total of 223 participants returned completed questionnaires, giving a response rate of 30% (which is 10% higher than had been expected). This consisted of 81 SpRs (27% response rate) and 137 consultants (30% response rate). In total, there were 93 responses from paediatrics (27% response rate), 78 from obstetrics and gynaecology (40% response rate) and 52 from anaesthesia (24% response rate). Some demographic data were missing: five participants did not report their grade and seven did not report length of time in service; eight participants did not record either grade or length of service. Between three and nine respondents did not answer some questions on competency ratings. The appropriate degrees of freedom and exact n are given in all analyses. Response rates exceed expectations for the sampling procedure used[8] and thus there is confidence in these data regarding the experience of those making the judgements.

Information regarding age and sex could not be collected because of the need to maintain anonymity of data; however, the important factor for a job analysis is the relevant job experience of the sample in question. We compared SpRs with consultants: the relative levels of experience associated with each of these posts may imply that different competencies are perceived as more or less important.

Materials

The questionnaire, developed from Phase 1, focused on three levels of job grade (SHO, SpR and consultant). Participants (SpRs and consultants) were asked to judge the importance of each competency for each level of the three job grades. An example of an item from the questionnaire is provided in Fig. S1. For each competency, ratings were made by doctors with respect to their own specialties. Ratings of importance for each competency were made using a 5-point Likert scale (1 = of little importance, 5 = of high importance).

Data analysis

In Phase 1, for each specialty, behavioural descriptions were clustered into competency domains using a standard card sort procedure.[3] As part of the validation process, the competency domains were labelled by an expert panel ($n = 4$), comprising the training programme director for each specialty and the postgraduate dean in the region. The inter-rater reliability for these analyses was evaluated using the κ coefficient. Four judges worked in pairs (two pairs of two) to code the behaviours into competency domains. Thus pairs provided two independent sets of judgements.

In Phase 2, the data were analysed non-parametrically using Friedman tests for κ-related samples for within-specialty effects and the Kruskal–Wallis test for between-specialty effects. As the statistical analyses reported in this paper involves several multiple posthoc comparisons, the Holm-modified Bonferroni procedure was used (see Keselman *et al.*, 2004[9]) as implemented in Zumastat.[10] (The traditional Bonferroni correction [α/κ of comparisons] has been criticised as being overly conservative. The Holm modification is a stepdown version that increases statistical power of the test. Initially for all contrasts, the most significant result is compared against a critical *P*-value when that *P*-value is based on α/κ for all comparisons. The next most significant result [step 2] is compared against a critical *P*-value based on $\alpha/\kappa - 1$ comparisons. This continues until an observed *P*-value is not smaller than the *P*-value on the associated $\alpha/\kappa - 1$ comparisons, whence all subsequent contrasts are non-significant.)

RESULTS

Question 1. What are the competency domains observed across various specialties?

A total of 944 behavioural descriptions were elicited from the job analyses. These were categorised into 14 competency domains across specialties (Table 2 for a summary definition of these domains). The inter-rater reliability (κ coefficients) for each individual competency domain was adequate to excellent, with all coefficients (except 1) > 0.60. Teaching was the only competency domain to have a coefficient of < 0.60 (0.53). However, a κ in the range of 0.40–0.60 is still regarded as demonstrating moderate agreement.[11]

Question 2. How important is each competency domain for SHO, SpR and consultant grades?

Here, we addressed career progression: is any particular competency domain perceived as more or less important at different career stages? For example, is empathy seen as more important for SHOs, SpRs or consultants, regardless of specialty? We applied Friedman tests for κ-related samples to each of the 14 competencies, separately for ratings made by SpRs and consultants for the three grades. This gave 28 separate tests and the *P*-value was adjusted, using a Holm–Bonferroni correction. Friedman tests were significant at $P < 0.001$ (minimum $\chi^2 = 23.4$). Examining the mean ranks for each competency, for the ratings made by SpR and consultant participants, showed that importance ratings increased from SHO to SpR, and from SpR to consultant. This shows that each competency domain is perceived as less important for SHOs than for SpRs, and as most important for consultants. This general rank ordering of importance (i.e. the importance of each competency domain increases with grade) emerges regardless of who is making the ratings (SpRs or consultants).

Question 3. Are certain competency domains perceived as more important within a particular specialty?

To explore this question, the three ratings for each competency domain (i.e. those made for SHOs, SpRs and consultants) were combined to create a single *index* for each competency. This is justified as the three judgements for each competency were significantly correlated with one another and the internal reliability for each of the 14 competency indices was good (mean Cronbach's coefficient $\alpha = 0.74$).

Within each specialty, Friedman tests were used to explore differences in perceived importance for each competency domain. There were significant differences within anaesthesia ($\chi^2(13) = 205.7$, $P < 0.001$), paediatrics ($\chi^2(13) = 344.3$, $P < 0.001$), and obstetrics and gynaecology ($\chi^2(13) = 321.6$, $P < 0.001$). As illustrated in Table 3, examination of the mean for each specialty showed that teaching (10.02), organisation/planning (10.28) and managing others (10.51) were perceived as least important in anaesthesia, where vigilance (13.14) and integrity (13.32) were considered the most important. In paediatrics, managing others (10.97) and teaching (11.11) were again perceived as least important, with communication skills (13.83), empathy (13.65) and integrity

Table 2 The competency domains and summary definition

Competency domain identified	Summary definition
1 Clinical/technical knowledge and expertise	Technically proficient and able to use one's judgement appropriately when identifying risks and treatment options
2 Communication skills	Listens actively, understands body language, engages in social conversation, confident style and effective advocate
3 Conceptual thinking, problem solving	Thinking beyond the obvious to get to the root cause; open to new ways of thinking, able to judge the quality of various pieces of information
4 Coping with pressure	Deals confidently and calmly with emergencies; aware of own limitations and recognises stress in self and others
5 Empathy and sensitivity	Treats patients with sensitivity and personal understanding; works to involve patients and shows interest in them
6 Learning and personal development	Reflects on, and learns from experience; identifies gaps in own knowledge and acts of feedback
7 Legal, ethical and political awareness	Aware of legal and ethical implications of action, and of policy issues; is able to lobby effectively on behalf of the patient
8 Managing others	Provides leadership, delegates appropriately, is effective in the management of staff and resources
9 Personal attributes	Flexibility, honesty, kindness, compassion, patience, reliability, warmth and commitment; includes physical skills such as manual dexterity, hand–eye co-ordination
10 Organisation and planning skills	Able to organise a mass of information in a structured manner, showing good administrative ability; prioritises and delegates effectively
11 Professional integrity and respect for others	Open and honest with patients and colleagues; demonstrates courage in own convictions, appreciates the value of others' contributions
12 Teaching	Demonstrates ability to deliver teaching to junior staff; facilitates learning and ongoing development in juniors
13 Team involvement	A team player who contributes to and facilitates decision making; works in partnership with colleagues
14 Vigilance and situational awareness	Able to monitor, think ahead and anticipate, especially in volatile/unstable situations

(13.64) regarded as most important. Finally, in obstetrics and gynaecology, teaching (10.58) and managing others (10.94) were considered least important, and integrity (14.07), empathy (13.93) and communication skills (13.80) were rated as most important. Teaching and managing others were consistently rated as least important. In summary, within anaesthesia, integrity and vigilance were the most important competency domains; in paediatrics, communications skills and empathy were considered most important, and in obstetrics and gynaecology, integrity and empathy were rated as most important.

Question 4. Are there differences between the specialties in the importance of each competency domain?

To examine this question, the 14 competency indices were used to examine if any competence is perceived as more or less important for any one specialty. For example, how do judgements of empathy vary across anaesthesia, obstetrics and gynaecology, and paediatrics?

Results from the Kruskal–Wallis tests for each competency domain are presented in Table 4. There are significant effects for six competency domains. These were followed up with the Mann–Whitney test. As there are three comparisons per competency, this gives 18 posthoc comparisons. Using the Holm-modified Bonferroni correction, four of the posthoc tests could be classed as significant (Table 4).

When considering the uncorrected comparisons, there were significant effects between the specialties for: empathy and sensitivity; communication skills; organisation skills; professional integrity; team involvement, and teaching. Further comparisons

Table 3 Mean importance rating for each competency domain within each specialty

Anaesthesia		Paediatrics		Obstetrics and gynaecology	
Domain	**Mean**	**Domain**	**Mean**	**Domain**	**Mean**
Integrity	13.32	Communication	13.83	Integrity	14.07
Vigilance	13.14	Empathy	13.65	Empathy	13.93
Communication	12.94	Integrity	13.64	Communication	13.80
Empathy	12.76	Personal attributes	13.40	Personal attributes	13.23
Personal attributes	12.76	Team involvement	13.18	Coping with pressure	12.98
Coping with pressure	12.65	Coping with pressure	12.97	Team involvement	12.86
Clinical expertise	12.50	Learning	12.82	Vigilance	12.58
Learning	12.40	Vigilance	12.38	Learning	12.61
Team involvement	11.92	Clinical expertise	12.28	Clinical expertise	12.38
Problem solving	11.48	Organisation and planning	12.11	Legal, ethical	11.78
Legal, ethical	11.00	Problem solving	11.94	Problem solving	11.77
Managing others	10.51	Legal, ethical	11.88	Organisation and planning	11.66
Organisation and planning	10.28	Teaching	11.12	Managing others	10.94
Teaching	10.02	Managing others	10.97	Teaching	10.58

were conducted using Mann–Whitney tests to identify pairwise differences. These comparisons showed that empathy and sensitivity, communication skills, organisation skills, team involvement, and teaching were all perceived as significantly more important in paediatrics, and in obstetrics and gynaecology, than they were in anaesthesia. There was no significant difference between paediatrics and obstetrics and gynaecology in these competencies. Finally, professional integrity was perceived as the most important competency domain in obstetrics and gynaecology, followed by paediatrics, followed by anaesthesia. However, only four of these differences were significant after the Holm-modified Bonferroni correction was applied (see the final column of Table 4). These four differences should be considered as the most reliable. [Table 4 shows all the differences identified so that future studies can use our results as a basis for power calculation.]

DISCUSSION

The present study identified 14 competencies that are core for three specialties. This indicates that there is a common set of competency domains which are important across the three secondary care specialties. The results clearly show there are more similarities than dissimilarities between the specialties under investigation. However, the perceived importance of each competency differs in terms of prioritisation both *within* and *between* the specialties studied. These differences are subtle, but they provide an insight into the context-specificity of the competency domains. For example, within anaesthesia, vigilance and integrity are rated as most important. Team involvement is rated as relatively important in paediatrics and in obstetrics and gynaecology, compared with the other competency domains. Further, team involvement is rated as more important in paediatrics and in obstetrics and gynaecology than in anaesthesia. In combination, these findings are intuitive, given the nature and context of the anaesthesia specialty.

Within specialties some competency domains were judged as being more important than others. For example, in anaesthesia, vigilance was rated as a highly important competency, compared with some other competencies. Similarly, communication skills were perceived as more important in paediatrics than were other competency domains. Within paediatrics and obstetrics and gynaecology, communication and empathy take priority over vigilance. This suggests that different specialties place greater priority on certain competency domains that reflect the nature of the role. However, it should be acknowledged that there are many similarities across the specialties, which implies that applicants should demonstrate a minimum standard across these domains, but should have an aptitude for the domains identified as

*Table 4 Comparisons between specialties**

Competency domain	Anaesthesia (*n* = 52)		Paediatrics (*n* = 93)		Obstetrics and gynaecology (*n* = 78)		*P*-value	Uncorrected significant differences	Holm–Bonferroni corrected differences
	Median	Mean	Median	Mean	Median	Mean			
1 Empathy and sensitivity	13	12.8	14	13.7	15	13.9	**0.014**	**(P = O&G) > A**	
2 Communication skills	13	11.9	14	13.8	15	13.8	**0.014**	**(P = O&G) > A**	
3 Clinical knowledge and technical expertise	12	12.5	12	12.3	12	12.4	0.557	P = O&G = A	
4 Conceptual thinking and problem solving	12	11.4	12	11.9	12	11.7	0.218	P = O&G = A	
5 Organisation and planning	10	10.4	12	12.1	12	11.7	**0.001**	**(P = O&G) > A**	**P > A; O&G > A**
6 Professional integrity	14	13.3	14	13.6	15	14.1	**0.019**	**O&G > P > A**	
7 Managing others	11	10.4	11	11.0	11	10.9	0.184	P = O&G = A	
8 Team involvement	12	11.9	14	13.2	13	12.9	**0.001**	**(P = O&G) > A**	**P > A**
9 Legal, ethical and political awareness	11	11	12	11.8	12	11.9	0.097	P = O&G = A	
10 Vigilance and situational awareness	14	13.1	12	12.5	13	12.7	0.069	P = O&G = A	
11 Learning and personal development	12	12.4	13	12.8	13	12.7	0.382	P = O&G = A	
12 Teaching	10	10.0	11	11.2	11	10.8	**0.002**	**(P = O&G) > A**	**P > A**
13 Coping with pressure	13	12.6	13	13.0	13	12.9	0.473	P = O&G = A	
14 Personal attributes	12	12.7	14	13.3	14	13.2	0.099	P = O&G = A	

* All tests were two-tailed
P = paediatrics; O&G = obstetrics and gynaecology; A = anaesthesiology
Figures in bold indicate significant result ($P < 0.05$)

priorities in that specialty. This information is useful for designing both selection criteria and selection methods for each specialty.

Organisation and planning, team involvement and teaching are all perceived as more important in paediatrics than in anaesthesia. Again, this has implications for selection. Although these skills are obviously needed across all specialties, those who have particular strengths in these areas may wish to consider working in paediatrics and those who do not may be advised to consider other specialties. This suggests that competency information of this type can be used in careers counselling.

We believe that this is the first study of its kind in this area, and the outcomes have important implications for understanding the relative importance of competency domains in three secondary care specialties. However, this is an initial study and sampling was limited; thus results must be interpreted accordingly. The approach should be replicated in a wider sample and across other specialties. The methodology employed (a multi-method approach using both qualitative and quantitative analyses) could be used to further explore the competencies required in other specialties. The methodology did not rely solely on post-holders, but included the perspectives of other important stakeholders (various health professionals and patients). The results have been used by the Royal Colleges to develop appropriate selection criteria for entry into specialty training.[2]

Implications and future research

Given the recent changes in the training pathway for junior doctors entering specialty training via the MMC agenda in the UK,[2] this study informs the

Table 5 Illustration of qualitative differences between specialties in describing communication skills

Paediatrics communication skills
Is able to switch conversational style from adult to child and to manage the doctor–patient–parent triad during consultation; engages child in conversation; positions self at child's level when speaking to child
Anaesthesia communication skills
Is able to verbalise intentions, explain actions to various people in a team (e.g. surgeons and support staff); asks open questions at pre-med to ascertain the facts, rather than just running through a checklist; can offer clear explanations quickly to patients and establish ongoing doctor–patient relationships
Obstetrics and gynaecology communication skills
Is able to discuss psycho-sexual problems with patient; uses open questions or puts 'feeler' questions out to patients who may be shy/embarrassed to discuss symptoms; uses cues (such as foetal heart monitor) to illustrate explanations

design of selection criteria and selection methods. Most significantly, by describing the competency domains relevant to the various specialties, this information could aid the development of careers counselling information for trainees at an early stage in their training. Specifically, information could be provided regarding the relevant competency domains that are most or least important in the various specialties. Further, by providing evidence from the job analysis studies, this information could be contextualised in a manner relevant to the chosen specialty. For example, the context for communications skills in paediatrics is qualitatively different to that in anaesthesia and both are qualitatively different to those in obstetrics and gynaecology (Table 5). Providing trainees with this information would enhance the tools they have available to inform *self-selection* and career choice. Further research could adopt a similar job analysis methodology to explore other specialties, such as surgery, which might uncover other important competency domains or might emphasise the importance of certain domains over others. Given the trend for undergraduate selection research to also consider non-academic skills,[12] this research agenda needs to be more closely informed by current work in the postgraduate specialties.[13] Specifically, we suggest that core competencies identified as important for postgraduate specialties should be considered as part of the undergraduate selection process.

Contributors: FP and ST conceived, designed and organised the study, liaised on data collection and interpreted results. FP and EF analysed and interpreted the data. FP and EF wrote and revised the paper. All three authors commented on and approved the final version of the paper.
Acknowledgements: the authors thank Drs Raymond Randall, Kath Farrell (City University London), Helena Davies, Gill Hood and Peter Stewart (Yorkshire and the Humber Deanery).
Funding: this study was supported by the Yorkshire and the Humber Region.
Conflicts of interest: FP is a Director of the Work Psychology Group (Nottingham, UK), which provides advice to various organisations on best practice selection methodologies. ST has advised the Department of Health on specialty recruitment as chair of the Conference of Postgraduate Medical Deans Steering Group for Selection and Recruitment.
Ethical approval: this study was approved by City University London.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Figure S1. Example questionnaire item and participant instructions.

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Received 23 February 2007; editorial comments to authors 15 August 2007, 18 April 2008; accepted for publication 13 May 2008