ORIGINAL ARTICLE

Modernising Medical Careers foundation programme curriculum competencies: will all rotations allow the necessary skills to be acquired? The consultants' predictions

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The new UK Foundation Programme is competency based, with a trainee's progression dependent on achieving and demonstrating a range of competencies. However, we do not know whether all rotations, comprising different combinations of specialties, will enable the foundation programme trainees to acquire these competencies. Questionnaires were sent to 100 consultants from a range of specialties asking them to predict if a foundation year 1 or foundation year 2 doctor could acquire each competency when working in the consultant's specialty. Views on the competency framework as a whole were also sought. Results suggest that the competencies trainees may acquire depend on the specialties they experience in their rotation. Moreover, a range of competencies may prove difficult to acquire across most of the specialties. This has implications for the composition of foundation programme rotations, for educational and clinical supervision, and for the content and mode of curriculum delivery.

The UK Modernising Medical Careers initiative has led to the development of a new 2-year foundation programme for junior doctors. This covers the first 2 years of postgraduate training, formally the pre-registration house officer (PRHO) year and first year at senior house officer level (broadly equivalent to the internship year and first residency year in the US). The programme is competency based and one main aim is for all completing foundation doctors to be able to manage the acutely ill patient. A competency-based approach to education and training is not new to the UK healthcare system. In particular, nurse education has been subject to a drive towards competency-based teaching, learning and assessment.^{1,2} Competency-based education has an even longer history in other post-compulsory education contexts, and it is worth noting that competency models have been heavily criticised on epistemological, ethical and political grounds.^{3,4} Nevertheless, a critique of competency education is not the focus of this study and we take as our starting point the requirements of the General Medical Council and the Postgraduate Medical Education and Training Board. These bodies, which are responsible for the approval and quality assurance of the two foundation years, stipulate that progression from the foundation programme is dependent on each trainee achieving and demonstrating "competence" in a range of listed skills, knowledge and attitudes.

Foundation training will expose trainees to a greater range of specialties (including "minor" specialties, shortage areas and general practice) than would previously have been the case. Yet, will it be possible for trainees to acquire competencies related to, for example, the treatment of the acutely ill patient in specialties such as psychiatry or chemical pathology? A key question is whether all rotations, comprising different combinations of specialties, will enable the foundation trainees to acquire the necessary competencies, or whether there are some combinations that would leave serious gaps.

The Leicestershire, Northamptonshire and Rutland Healthcare Workforce Deanery piloted and evaluated 17 foundation year 1 (FY1) and 35 foundation year 2 (FY2) programmes in 2004–05. Each of these programmes consisted

of three 4-month posts, so a 2-year foundation programme would usually contain six 4-month posts. As part of a wider evaluation of the effect of Modernising Medical Careers, a key question was whether any range of specialties that formed a rotation would have the potential to allow the foundation doctor to achieve the required competencies, or whether some combinations of posts would be deficient. To answer this question, predictions of consultants and general practitioners (GPs) were sought about the competencies they thought would or would not be feasible for foundation trainees to acquire in their specialty (for ease of reporting in this paper, from here on we shall use the term "consultants" generically to mean both hospital consultants and GPs).

The aims of this study were therefore:

- To inform the planning of foundation rotations by identifying potentially problematic specialties in terms of trainees being able to acquire foundation competencies.
- To inform further development of the taught element of the curriculum for foundation doctors.

METHODS

Two questionnaires were developed based on the competencies for FY1 and FY2 listed in the draft foundation curriculum document published in 2004.⁵ In both questionnaires, against each of the individual competencies, consultants were asked to indicate whether they thought that a trainee might find it difficult to get the competency signed off during a 4-month post in their particular specialty. Consultants were also invited to give further comments via an open-response question at the end of the questionnaire. The FY1 questionnaire contained 113 competencies and the FY2 questionnaire contained 111 competencies. A considerable overlap of the FY1 and FY2 competencies was noted, which enabled much of the data to be combined for purposes of analysis.

Abbreviations: FY1, foundation year 1; FY2, foundation year 2; PRHO, pre-registration house officer; GP, general practitioner

It is important to note that a final curriculum document has since been published, with some revisions made to the competency framework.⁶ Changes to the competencies relevant to our findings are highlighted where appropriate.

The FY1 questionnaire was distributed by post to 50 consultants. The FY2 questionnaire was distributed by post to a different sample of 50 consultants. Both questionnaires were sent in August 2004, just after the beginning of the pilot programmes, with reminder letters being sent 4 weeks later. Consultants were identified primarily from the Leicestershire, Northamptonshire and Rutland Healthcare Workforce Deanery's list of clinical supervisors. Both samples were chosen to include consultants from as wide a range of specialties as possible. Therefore, respondents to the questionnaire represented a variety of specialties. For the purposes of this study, where a competency was indicated as potentially difficult to acquire, the competency was termed as "problematic" for the specialty.

Quantitative analysis included obtaining frequencies of responses using SPSS V12.0. In addition, qualitative data were processed through thematic analysis of open responses to the questionnaires.

RESULTS

The response rates to the FY1 and FY2 competency questionnaires were 52% ($n = 26$) and 74% ($n = 37$), respectively. Results are presented together, with differences highlighted between FY1 and FY2 where appropriate. Hence, in total, responses were received from 63 consultants. These respondents represent 29 different specialties.

Proportion of competencies considered potentially problematic

From the FY1 questionnaire, the number of competencies any one consultant identified as potentially difficult for trainees to acquire ranged from 0 to 24 for all but two of the respondents. There were two outliers to this, with one respondent raising doubts about 33 competencies (one of three cardiology consultants), and another (paediatric orthopaedics consultant) indicating doubts about 64 competencies. The mean number of competencies for which doubts were expressed was 11.6—that is, <10% of the FY1 competencies (excluding the outliers, the mean was 8.5).

From the FY2 questionnaire, the number of competencies identified as difficult for trainees to acquire ranged from 5 to 39 for all but two of the respondents. Again, there were two outliers, with one respondent raising doubts about 62 competencies (microbiology consultant), and another (chemical pathology consultant) indicating doubts about 59 of the competencies. The mean number of competencies for which doubts were expressed was 21.3, which is about 20% of the FY2 competencies (excluding the outliers, the mean number was 19.0). Clearly, then, the higher-level competencies as outlined for FY2 were perceived to be more problematic than the lower-level competencies for FY1.

Potentially problematic specialties

The range of specialties represented by the data was not exhaustive but covered a total of 29 specialties. Findings suggest that each specialty has a particular "profile" in terms of the number and combinations of competencies predicted as problematic. Table 1 shows the percentage of predicted problem competencies for each of the specialties (of FY1 or FY2 level combined).

Paediatric orthopaedics, microbiology and chemical pathology are the three most problematic specialties in this list, with over half of FY1 or FY2 competencies predicted as difficult for a trainee working in the specialty to acquire. Further open comments from respondents showed that it

Table 1 Percentage of problematic competencies by specialty

Specialty	% Problematic
Paediatric orthopaedics	57.1
Microbiology	55.9
Chemical pathology	53.2
Obstetrics and gynaecology	30.6
General medicine and cardiology	27.9
Trauma orthopaedics	27.9
General and genetic medicine	24.3
General practice	18.8
Neonatology	17.1
Paediatrics	17.1
Dermatology	17.0
Anaesthetics	14.0
Cardiology	14.0
General surgery	13.7
Urology	13.3
Vascular surgery	11.9
Colorectal surgery	10.8
General medicine	9.9
Coronary care	9.0
Accident and emergency medicine	8.6
General medicine and rheumatology	8.1
Gastroenterology	8.0
Haematology	6.3
General and vascular surgery	6.3
Diabetes	5.4
General medicine and gastroenterology	3.9
Neurology	2.7
Ear, nose and throat	2.7
General and stroke medicine	0.0

was the very nature of the specialty that would lead to a trainee having difficulty in achieving certain competencies. For example, the consultants representing microbiology and chemical pathology acknowledged that, as their specialties did not deal directly with patients requiring acute care, a great many competencies would be difficult to get signed off. However, these consultants did argue that their specialties offered experience in other areas, which most other specialties could not. The consultants working in paediatric and neonatal specialties indicated that in the context of caring for children, many competencies related to decision making and communication with relatives will be difficult for the trainee to demonstrate directly, because these activities are carried out mostly by consultants or experienced specialist registrars (so they are only likely to be observed by the trainee). Many of the specialties with <10% of competencies regarded as problematic provide direct exposure to the acutely ill patient or include treating a variety of patient groups.

Competencies considered problematic across a wide range of specialties

Several competencies were identified as problematic in a substantial number of specialties (over a third). These include:

- Teaching-related competencies:* Teaching-related competencies included, "Teach and support students and trainees in one-to-one settings" and "Coach F1 trainees/PRHOs in these attitudes". Open comments from four respondents explained that there are hospital departments and primary care practices that do not have FY1 trainees, PRHOs or medical students, so it would be difficult to arrange for trainees to gain the necessary experience.
- Primary care (community care) competencies:* Not surprisingly, several respondents to the FY2 questionnaire (hospital consultants) indicated a high level of doubt that competencies relating to primary care could be

acquired within their specialty (eg, “Understand the issues of informed consent in primary care”). It should be noted that although the draft curriculum contained 16 references to primary care competencies, the later edition only contains 6 and so experience in primary care in some form remains essential for all foundation doctors.

- c. *Mental health competencies*: The largest grouping of competencies considered problematic related to mental health issues. Examples of these competencies include “Be able to discuss provisions of Mental Health Act” (which now reads “Knows the provisions of Mental Health Act and can apply them appropriately” in the latest version of the curriculum), “Recognise diagnostic features of psychosis” (now reads “Recognises diagnostic features of psychosis and acute confusional states”), “Perform a mental state assessment” and “Be able to initiate a referral to mental health services where appropriate”. Interestingly, the consultants from the following specialties did not regard these competencies as problematic: general medicine and gastroenterology, stroke and general medicine, gastroenterology, neurology, colorectal surgery, general practice, accident and emergency medicine, and diabetes. These specialties involve working with patient groups that are likely to include some people with mental health issues (such as older people).
- d. *Other competencies and comments*: Some additional, specific competencies were identified as problematic not just in one or two specialties but across several specialties, and are therefore worthy of mention. These are listed below separately for FY1 and FY2.

Foundation year 1

- “Be able to access Toxbase” (now reads “Knows how to access Toxbase and does so when necessary” in the new curriculum document).
- “Be able to demonstrate an awareness of child protection concerns where appropriate” (now reads “Understands and applies the principles of child protection procedures”).
- “Focused history taking, including psychosocial causes requiring social services or police involvement”.

Foundation year 2

- “Be capable of leading a multidisciplinary team”.
- “Support nursing staff in designing and implementing monitoring or calling criteria”.
- “Understand the legal implications regarding fitness to drive” (now reads “Warns patients about the legal implications regarding fitness to drive”).
- “Be able to describe the implications of pregnancy and hepatic and renal dysfunction for safe use of commonly used drugs” (now reads “Understands the principles of safe prescribing for children and older people, homeless people and those with limited or no understanding of English, and in the context of pregnancy and hepatic or renal dysfunction”).

Comments from respondents suggest that many of these very specific competencies are considered problematic simply because several specialties are unlikely to provide the appropriate context within which to acquire and demonstrate them. Alternative methods for developing these competencies will be required. Knowledge aspects can, clearly, be provided through the taught curriculum, whereas application of the knowledge and development of skills such as leading a

multidisciplinary team could benefit from the use of a simulated patient centre.

DISCUSSION AND CONCLUSIONS

Combining responses from the FY1 and FY2 questionnaires, the number of specialties represented overall is relatively large, with responses from consultants working in 29 different specialties. However, the number of respondents working in each different specialty is small, hence, rather than generalising from the data, the questionnaire responses are treated as representing the expert opinion of one or more individuals working within a very specific context.

The consultants’ predictions, as reported in this paper, have important implications for the composition of current and future foundation programme rotations, for determining the competencies to be provided by the taught curriculum, and for activities undertaken as part of clinical and educational supervision.

In the foundation years, each specialty has its own profile in terms of problematic competencies (with some specialties having a far higher number of such competencies than others). It is possible, therefore, that particular combinations of posts in a rotation could make it impossible for the foundation doctor to achieve all the competencies they require. This would have serious implications for the progression of the doctor’s career. One step towards a solution would be to ensure that combinations of posts maximise the opportunities. For example, from the specialties listed earlier (table 1), it would be advisable to put a low-problematic specialty, such as general and stroke medicine, with a high-problematic specialty such as microbiology.

In addition, there is a range of competencies that will be difficult for a large number of trainees to achieve through their on-the-job training, such as competencies related to mental health issues or to the teaching and support of others. To acquire these competencies, and to fill the gaps that particular rotations might leave, the relevant knowledge, skills and attitudes will have to be dealt with in other ways—for example, the taught curriculum, a combination of focused educational and clinical supervision, use of a simulated patient unit or targeted experiences.

The quantitative and qualitative consultant data therefore suggest the following principles:

- To maximise the opportunity to acquire as many of the competencies as possible, a foundation programme trainee must be in a rotation where it is feasible to acquire a high proportion of competencies across all the posts. A good strategy would be to pair the low-problematic specialties with the high-problematic specialties when formulating rotations.
- If a trainee is in a department that provides little experience of patients requiring acute care, then other posts in the rotation must provide the required experience for the competencies to be achieved. For example, in FY2, a rotation through posts in microbiology, chemical pathology and general practice would provide little opportunity to extend the skills in managing patients requiring acute care.
- Some specialties do not have medical students or FY1 doctors, which means that opportunities for foundation doctors to teach are limited. It is advisable, therefore, that at least one of the rotation posts should be in a department in which this experience is assured.
- Six competencies relate specifically to primary care experience. If a GP post cannot be included in a foundation doctor’s rotation, then targeted experiences will need to be planned, whether this is through weekly study leave to attend a practice, or through 1-day-a-week attachments.

- The evidence suggests that gaps in competencies are highly likely to occur through the limitations of opportunities in the specialties within the rotations. Gaps will also occur where foundation doctors have difficulty in progressing at the expected rate. Close clinical supervision and liaison with educational supervisors will, therefore, be instrumental in identifying individual needs and planning the solutions at an early stage to achieve the required competencies within the timescale.
- It will be important for trainees and their supervisors to review their progress in relation to acquiring the necessary competencies and to consider the implications for the later posts in the 2-year rotation. For example, action will need to be taken in post two if the final post in an FY2 rotation is to be in general practice and the trainee has been unable to achieve many of the acute care competencies.

More work is needed to identify potentially problematic combinations of specialties for future foundation rotations. At this stage, considering the predictions of expert practitioners about the competencies, further research is necessary to look at which competencies are actually acquired and what effect the combination of specialties has had on this process. This will not be straightforward and other factors will be involved—for example, the speed of learning and senior clinicians' teaching styles. Also, some teaching and learning, both formal and informal, will take place away from the ward (eg in seminars and workshops) and knowledge and skills, which could prove difficult to acquire during a post in a particular specialty, might be developed elsewhere.

We are therefore continuing to explore the extent to which FY1 and FY2 trainees have been able to achieve the required competencies. In addition, we are canvassing the opinions of a further set of consultants after the first year of foundation pilots to see the extent to which predicted problems reported here prove to be reality. However, the combination of posts within a rotation is likely to affect a trainee's ability to satisfactorily complete his or her foundation training within the given timescale. Lack of success will have resource and financial costs for both the National Health Service and the foundation doctor.

Learning points

- Nearly all specialties are predicted to leave gaps in the generic competencies that can be acquired in the foundation years.
- The specialties chosen to comprise rotations will impact on the successful completion of the foundation programme.
- Competencies relating to teaching skills and mental health issues will need special education and training provision in the majority of cases.
- Close educational supervision will be essential to ensure gaps in learning are identified early and can be addressed.

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