How competent do graduates feel to undertake the skills required by the General Medical Council?

The General Medical Council outlines the skills medical students are meant to learn as undergraduates. This article summarizes how competent some foundation year one doctors from one deanery felt to undertake these skills, what had prepared them and what they would like more training on.

Introduction

In the UK the aim of undergraduate medical education is to produce competent foundation year one (FY1) doctors equipped to begin postgraduate medical education and training (General Medical Council, 2009). In the UK, medical education for most doctors will consist of 5 years as an undergraduate followed by 2 years as a foundation doctor before entering specialist training. This can then take a further 10 years depending on which specialty doctors wish to train in.

At the time of this study, postgraduate deaneries were responsible for organizing postgraduate medical training and this was arranged on a regional basis. During the FY1 year graduates work on two or three rotations including a medical and surgical attachment and are assessed by senior clinicians on various key skills before they can progress to the second foundation year. In recent years there has increased interest in ascertaining the preparedness of medical graduates for the first year of postgraduate medical practice and it is has been accepted that preparedness is improving (Watmough et al, 2006a,b; Cave et al, 2007; Illing et al, 2008, 2013; Bleakley and Brennan, 2011; Goldacre et al, 2010, 2014). However, this has been with some caveats, for example Tallentire et al (2011) showed that graduates felt well prepared for consultation and communication skills but less prepared for acute care and prescribing.

In the UK, the General Medical Council is responsible for holding the medical register and setting the standards for medical education and in 2009 they published an updated list of skills which medical schools should prepare students to undertake (General Medical Council, 2009). This article summarizes the results of a questionnaire asking FY1 doctors in one deanery how competent they were at carrying out these specific skills and how well prepared they felt to work as FY1s.

Bleakley and Brennan (2011) have shown that curriculum design can make a difference to preparedness to practice. All UK medical schools have had to implement changes in their curricula since the 1990s (General Medical Council, 1993) to help prepare graduates for the role of working as a junior doctor. As a result of General Medical Council recommendations (General Medical Council, 1993, 2003, 2009) medical schools have had to provide specific clinical and practical skills teaching, an increased amount of clinical time with patients plus 'shadowing' doctors to help prepare students for the role of junior doctor. Therefore, the authors also wanted to ask the FY1s which areas of their undergraduate curriculum had prepared them to undertake these skills, what they have liked more teaching on as undergraduates and what they would like further teaching on as postgraduates.

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Methods

Ethical approval was sought and gained from the University of Liverpool, School of Medicine Ethics Committee. The questionnaires were distributed to FY1 doctors at 10 hospital trusts in the north west of England.

The questionnaires with envelopes attached were given to staff at the postgraduate education centres of the hospitals from December 2011 to February 2012 to distribute during protected teaching time. After asking about gender and medical school there was a 'general' question: 'How well prepared do you feel for your role as a foundation doctor?' The answers were given on a 5-point Likert scale ranging from 'generally very well prepared to 'generally not very well prepared' with 'quite well prepared' as the midpoint (*Table 1*).

They were then asked how competent they felt on a number of skills with the question: 'Please rate your competence in the following...' The answers were given on a 5-point Likert scale, which ranged from 'generally very competent' to 'generally not very competent' with 'generally quite competent' as midpoint (*Table 2*).

The skills evaluated were an abbreviated list of the skills expected of a qualifying foundation doctor outlined in the 2009 edition of *Tomorrow's Doctors* (General Medical Council, 2009), following a similar format to previously validated questionnaires (Jones et al, 2002; Watmough et al, 2006a,b). The quantitative data from the questionnaires were entered in an SPSS database for analysis.

Table 1. Doctors' responses to the question: 'In general, how well prepared do you feel for your role as a foundation doctor?'

	Very well prepared		Quite well prepared		Not at all well prepared
% of doctors rating themselves as (rounded up to nearest whole number)	13	42	42	2	1

Table 2. Doctors' responses to the question 'Please rate your competence in the following...' relating to the competencies listed on the questionnaire (% of doctors rating themselves as; rounded up to nearest whole number)

Item in order as it appeared on the questionnaire	Generally very competent		Generally quite competent		Generally not at all competent
Measuring body temperature	72	16	11	1	–
Measuring pulse rate and blood pressure	73	20	6	1	–
Transcutaneous monitoring of oxygen saturation	85	10	5	–	–
Venepuncture	77	19	3	1	–
Managing blood samples correctly	74	24	2	–	–
Taking blood cultures	61	28	10	1	–
Measuring blood glucose	58	26	13	2	1
Managing an electrocardiograph monitor	36	34	25	5	–
Performing and interpreting a 12-lead electrocardiogram	27	32	38	3	–
Basic respiratory function tests	19	33	38	9	1
Urinalysis using Multistix	61	24	11	3	1
Advising patients on how to collect a mid-stream urine specimen	49	31	15	3	1
Taking nose, throat and skin swabs	36	23	23	13	5
Nutritional assessment	14	18	33	28	7
Pregnancy testing	37	28	27	5	3
Administering oxygen	36	46	16	1	1
Establishing peripheral intravenous access and setting up an infusion; use of infusion devices	28	34	30	6	2
Making up drugs for parenteral admission	11	29	36	17	7
Dosage and administration of insulin and sliding scales	16	26	32	20	6
Subcutaneous and intramuscular injections	40	32	25	2	1
Blood transfusion	30	34	25	9	2
Male and female urinary catheterization	24	34	31	10	1
Instructing patients in the use of devices for inhaled medication	37	36	22	4	1
Use of local anaesthetics	23	23	32	14	7
Skin suturing stitches (normally includes use of local anaesthetic)	17	19	27	26	11
Wound care and basic wound treating	11	28	36	22	3
Correct techniques for 'moving and handling', including patients	19	31	29	13	8
Giving information about procedure, obtaining and recording consent, and ensuring appropriate after care	25	37	29	9	–
Hand washing (including surgical 'scrubbing up')	61	34	5	–	–
Use of protective equipment (gloves, gowns, masks)	66	27	5	2	–
Infection control in relation to procedures	65	31	3	1	–
Safe disposal of clinical waster, needles and other 'sharps'	80	17	2	1	–

The second part of the questionnaire contained three free-text open-ended questions:

1. Which parts of your undergraduate course were good in preparing you to undertake these skills?
2. How could your teaching in these areas be improved as an undergraduate?
3. Which of the skills listed in the questionnaire would you like to see taught as a FY1 doctor?

The free-text answers were analysed thematically (Boyatzis, 1998) with the answers grouped into categories according to the questionnaire item to which they referred and the subject of the comment. Comments were categorized by question and were given a 'theme', enabling quick identification of common comments. Progression through responses either reinforced existing themes or generated new themes.

Results

Out of a total of 347 FY1 doctors, 149 completed and returned the questionnaire, giving a response rate of 43%. Eighty seven were Liverpool graduates and 62 from other universities. The graduates were from 20 different UK universities including eight FY1s from the University of Cambridge, seven from Manchester, and five each from Birmingham and Sheffield.

Quantitative results

Overall, the results were generally positive with the majority of FY1s rating themselves at least generally quite competent for nearly all the skills on the questionnaire, and there were some very high competency ratings. They felt more competent at 'use of protective equipment (gloves, gowns, masks)', 'infection control in relation to procedures', 'transcutaneous monitoring of oxygen saturation', 'venepuncture', ' managing blood samples correctly', 'safe disposal of clinical waste, needles and other sharps' and 'measuring pulse rate and body temperature'.

The FY1s rated themselves as less competent at 'nutritional assessment', 'skin suturing stitches', 'wound care and basic wound treating', 'correct techniques for moving and handling patients', 'making up drugs for parenteral admission' and 'dosage and administration of insulin and sliding scales.'

Free text comments

Which parts of your undergraduate course were good in preparing you to undertake these skills?

A total of 114 FY1s responded to this question. Of these, 41 cited clinical exposure on clinical placements (including early clinical exposure), 41 cited specific clinical skills training, 39 shadowing 'a junior doctor', eight objective structured clinical exams and seven prescribing and pharmacology placements. A total of 15 Liverpool graduates mentioned the final year accident and emergency placement and 10 cited the final year as final exams took place at the end of 4th year allowing them to concentrate on learning clinical skills. Other aspects mentioned by fewer than five FY1s included student-selected components, community placements and communication skills classes.

How could your teaching in these areas be improved as an undergraduate?

A total of 85 FY1s made suggestions: 14 FY1s cited more clinical skills teaching generally, 10 more suturing, five shadowing of health-care professionals, five insulin and sliding scales, five catheterization and nutritional assessment. Some areas were cited by just one or two FY1s such as more pharmacology teaching and chest drains.

Which of the skills listed in the questionnaire would you like to see taught as a FY1 doctor?

A total of 86 FY1s answered this question: 27 FY1s cited suturing, 15 electrocardiograms, 12 wound care, 11 local anaesthetics, 11 nutritional assessment, nine insulin and sliding scales, seven catheterization, five intravenous drug administration and five prescribing (including oxygen). Again, there were a large number of comments by only one or two FY1s and many of the skills on the questionnaire were mentioned.

Discussion

The results are very positive as a large number of junior doctors who took part in this survey feel they are well prepared for the role and feel competent in performing a number of key skills expected of graduates by the General Medical Council. The majority of the FY1s rated themselves as at least generally quite competent for all the 32 skills listed and for some skills such as venepuncture, transcutaneous monitoring of oxygen saturation and managing blood samples over 70% of respondents felt themselves to be generally very competent.

Between 1998 and 2006 when many UK medical schools reformed their curricula to incorporate the recommendations of *Tomorrow's Doctors* feelings of preparedness significantly improved (Cave et al, 2009). The FY1s felt that extensive clinical exposure (time on the wards), shadowing and explicit clinical skills training were most valuable for helping to prepare them to work as FY1 doctors. These were recommendations included in the first *Tomorrow's Doctors* (General Medical Council, 1993) and it seems they are important and valued by junior doctors. Therefore, the comments made by these FY1s about what had prepared them to undertake these skills corroborate other research that suggests that these parts of the undergraduate curriculum do help prepare them for practice.

Goldacre et al (2014) showed that preparedness for practice can be improved with early structured work-based experiential learning with patient contact. The General Medical Council (2009) now calls for student assistantships – shadowing by another name. How long shadowing should last for has been debated (Cave et al, 2009), but 8 weeks is popular with Liverpool students (Watmough et al, 2010, 2012).

Liverpool graduates in the survey also cited their final undergraduate year as being helpful preparation. Other research (Watmough et al, 2006a,b, 2010, 2012; Brown et al, 2010) has shown that because the final exams take place at the end of the 4th year students use the final year to prepare themselves to work as junior doctors through extensive clinical contact. Shadowing and clinical exposure were cited proportionately in almost equal numbers by both Liverpool and non-Liverpool graduates, however, which suggests shadowing, extensive clinical exposure and time on the wards is widespread and valued.

The FY1s stated that their undergraduate teaching on suturing, insulin and sliding scales, catheterization and nutritional assessment could have been improved. They stated that they wanted more postgraduate teaching on suturing, catheterization, local anaesthetics, wound care, electrocardiograms, and insulin and sliding scales. There was a correlation between the skills the FY1s felt less prepared to undertake on the questionnaire and what they would like more teaching on as undergraduates and postgraduates. For example, over a third of the FY1s rated themselves as less than quite competent at suturing.

It has been shown that graduates have felt unprepared for suturing (Jones et al, 2002; Watmough et al 2006a,b) and for performing complex practical procedures (Morrow et al, 2012), although skills such as manual handling scored lower on the questionnaire but were not cited by graduates as requiring extra teaching. Maybe the FY1s did not consider this to be as important as suturing. In total, 85% of the FY1s rated themselves as very competent for transcutaneous monitoring of oxygen saturation, whereas only 11% rated themselves as very competent for wound care and basic wound treating so there are clearly some skills which are harder to teach than others or gain experience with as undergraduates. This is despite the fact that the skills listed in the questionnaire are skills that the General Medical Council expects UK medical schools to teach. A number of FY1s said specific clinical skills training was very helpful in preparing them for practice. However, others cited the need for more clinical skills teaching as undergraduates which suggests that more teaching could take place on certain clinical skills.

One limitation of this research is that it is unclear whether the FY1s feel they want more teaching on these skills as they were not adequately covered as undergraduates or whether they feel they are skills which should be taught as postgraduates. While medical schools do need to ensure students are provided with early exposure to clinical environments and to 'act' as juniors doctors, patient safety guidelines are often challenging (Brennan et al, 2010). Latest guidelines from the General Medical Council (2014) reiterate the importance of training for all doctors and students but also patient safety and patient dignity. Medical schools, the General Medical Council and postgraduate bodies should investigate how far it is possible for medical students to be taught or practice the skills which the doctors felt less competent at as undergraduates. It could be that some of these skills can only be practiced by postgraduates. Skills such as venepuncture, hand washing including scrubbing up and

measuring body temperature and blood pressure which scored highly on the questionnaires are skills which students can gain experience in before they graduate.

Limitations

The graduates were only rating their perceived competencies on the skills, not being formally measured on their skills. It is possible that the questionnaires may have attracted graduates who had strong feelings either way about their competencies. However, the questionnaires were distributed at random FY1 teaching sessions so it could be argued it was more dependent on which teaching session they attended than their views on their skills or how well prepared they were to work as FY1 doctors.

It is not clear if the FY1s were basing their perceptions of competencies on their training as undergraduates or being taught and supervised on these skills as doctors. However, any implicit biases are the same for all the FY1s who took part in this survey. Whether or not they have overrated their competencies it can be argued it is better for junior doctors to feel some confidence in their skills than have a total lack of confidence (Cave et al, 2007).

It was not clear whether the free-text comments about what they wanted as FY1s were because of deficiency as undergraduates or because respondents felt they were only appropriate to be taught at postgraduate level. It can be difficult to get students and junior doctors to complete questionnaires. It would have been preferable to have a higher response rate, but this was similar to the response rates of other studies for this kind of work (Cave et al, 2009; Tallentire et al, 2011). There was a good mix of respondents from different medical schools.

Conclusions

Overall, the results are positive and show that generally the FY1 doctors who took part in this project felt well prepared to undertake the majority of skills listed on the questionnaire. Certain themes did emerge with graduates, whichever medical school they graduated from, citing shadowing, specific clinical skills tuition and ward time as being beneficial.

This work adds to the body of literature that shows that graduates are feeling better prepared to work as junior doctors and that the General Medical Council's recommendations on medical education since 1993 have had a positive impact. However, there are still some areas that graduates would like more supervised training on. There should be a debate between universities, hospitals and the General Medical Council about whether all doctors can be taught these skills as undergraduates or whether some of these skills now can only be taught in the postgraduate sphere. **BJHM**

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KEY POINTS

- There has been increasing interest in the preparedness of medical graduates for practice.
- A questionnaire was sent to foundation year 1 doctors asking them to rate their training and their competencies in certain key skills expected by the General Medical Council.
- The results were generally positive with the graduates feeling at least generally quite competent and above in all skills on the questionnaire.
- Respondents wanted more training on suturing, wound care and basic wound treating, electrocardiograms and dosage and administration of insulin and sliding scales.
- The foundation year 1 doctors particularly valued shadowing, clinical skills training and clinical exposure as undergraduates.
- However, it was unclear whether all the skills could be taught as undergraduates.