

# Educational supervisors' views on the competencies of preregistration house officers

**In 1996 The University of Liverpool reformed its medical curriculum from a very traditional lecture-based course to an integrated problem-based learning curriculum. This article outlines the results of questionnaires sent out to educational supervisors in the Mersey Deanery studying the competencies of the preregistration house officers they supervise.**

## Introduction

In order to evaluate the changes in the Liverpool curriculum a number of projects have been developed. For example, Brown et al (2003, 2004) have reported the effect curriculum change has on the attitudes of Liverpool preregistration house officers (PRHOs) to postgraduate training. In the UK all PRHOs are assigned consultant educational supervisors who have to gauge their performance during the PRHO year. In 1997 the General Medical Council (GMC), in *The New Doctor* (GMC, 1997), laid out the skills attitudes and competencies it expects PRHOs to undertake after graduation.

The focus of this article is the use of questionnaires, based on the skills laid out on *The New Doctor* to gather the views of educational supervisors on the competencies of the Liverpool PRHOs they supervise. Data was collected on traditional medical curriculum (TMC) and reformed medical curriculum (RMC) graduates.

## Study population

The study population comprises of educational supervisors of Liverpool graduate PRHOs from the following cohorts: 1999 (penultimate TMC), 2000 (final year TMC), 2001 (first year RMC) and 2002 (second year RMC).

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## The questionnaires

Questionnaires were sent to consultant educational supervisors in the Mersey Deanery, where the vast majority of Liverpool graduates undertake their PRHO training. These were developed by the University of Manchester (Jones et al, 2001, 2002) containing 31 skills, attitudes and competencies from *The New Doctor* (GMC, 1997). The questionnaires asked the supervisors: 'Please rate the Liverpool graduates on their competence in the following...'. The answers were given on a 5-point Likert scale, which ranged from 'generally not at all competent' to 'generally very competent' with 'generally quite competent' as midpoint.

## Methods

The data were analysed using the statistical package for social sciences (SPSS) version 11.0 for Windows, and non-parametric tests (Mann-Whitney U) were used to test for significant differences. For the purpose of this article and ease of presentation the questionnaire results have been summarized into the upper two points (more than generally quite competent), the midpoint (generally quite competent) and the lower two points (less than generally quite competent). The results shown in this article are the average of the supervisors' perceptions of the two TMC cohorts and two RMC cohorts. The questionnaires were distributed in May of each year, so the supervisors would have experienced their full quota of PRHOs per cohort. One follow-up letter was sent to non-respondents a month later.

## Results

The response rates were 69.8%, 70.6%, 77.6% and 63.9% for cohorts in 1999, 2000, 2001 and 2002 respectively.

The results in *Table 1* show the average of the two cohorts (1999 and 2000) per-

taining to the TMC and two cohorts (2001 and 2002) pertaining to the problem-based learning (PBL) curriculum and the results of non-parametric tests ( $P \geq 0.05$ ) comparing the consultants perceptions of TMC and RMC PRHOs.

Twenty five of the 31 variables had improved on the more than midpoint scales when comparing the TMC with RMC graduates. Twelve of the questionnaire variables showed significant difference, with ten of these variables rated more favourably for the RMC graduates.

Twenty nine supervisors completed the questionnaire for all four cohorts, 64 completed the questionnaires for the last cohort of the TMC and first cohort of the RMC curriculum. Seventy eight supervisors completed the questionnaires for three out of the four cohorts. There were 13 supervisors who only completed questionnaires on RMC PRHOs. The highest response rate was for the first cohort of the RMC, so it could be that some supervisors were more motivated to take part in that survey, and 15 more supervisors completed questionnaires for that cohort compared with the last cohort of the TMC. Some rotations do rotate supervisory responsibilities from year to year but the actual PRHO posts and rotations changed very little during the 4 years these questionnaires were distributed.

Given the ambiguity in these figures it is hard to say whether there is any bias or impact in the overall results. However, as will be considered in the discussion, there is a discrepancy in results between those 64 supervisors who completed questionnaires on the final cohort of final TMC graduates and RMC and the rest of the results as a whole.

## Discussion

The results indicate that the educational supervisors scored the first two cohorts

**Table 1. Educational supervisor ratings on competencies listed in The New Doctor. Response to question: 'Please rate the Liverpool preregistration house officers (PRHOs) on their competence in the following'**

Item in order as it appeared on the questionnaire	% of supervisors rating the PRHOs as (rounded up to nearest whole number):						P value (<0.05)
	More than quite competent		Quite competent		Less than quite competent		
	TMC	RMC	TMC	RMC	TMC	RMC	
Communicating effectively	49	64	46	31	5	5	0.001
Working in a team	53	62	41	31	6	6	ns
Being aware of limitations	56	55	37	39	7	6	ns
Understanding disease processes	23	15	55	52	22	33	0.002
Managing time effectively	26	35	48	48	35	17	0.031
Developing appropriate attitudes towards personal health and wellbeing	40	45	51	47	9	8	ns
Recognition of social and emotional factors in illness and treatment	35	44	51	49	14	7	0.009
Providing care for people of different cultures	33	40	40	54	17	6	0.013
Coping with uncertainty	20	26	43	52	37	22	0.003
Making the best use of laboratory and other diagnostic services	25	28	46	42	28	24	ns
Using informatics as a tool in medical practice	34	61	45	31	20	8	0.001
Understanding the purpose and practice of audit, peer review and appraisal	18	34	45	48	34	18	0.001
Understanding the relationship between primary and social care and hospital care	23	31	54	55	31	14	0.012
Using opportunities for disease prevention and health promotion	13	20	48	55	39	25	ns
Being aware of legal and ethical issues	14	26	52	54	34	20	0.001
Understanding the principles of evidence-based medicine	20	30	58	59	22	11	0.001
Diagnosis, decision making and the provision of treatment including prescribing	35	22	45	45	22	33	0.001
Keeping accurate records	42	50	47	40	12	10	ns
Obtaining valid consent	41	40	41	41	18	19	ns
Calculating accurate drug dosages	36	32	54	56	10	12	ns
Writing a prescription	38	44	53	49	9	7	ns
Venepuncture	46	53	45	42	9	5	ns
Arterial blood sampling	40	45	43	40	17	15	ns
Suturing	15	20	34	32	51	47	ns
Performing an electrocardiogram	32	33	47	47	21	21	ns
Basic cardiopulmonary resuscitation	39	44	53	44	8	6	ns
Administering oxygen therapy safely	33	31	54	56	13	13	ns
Correctly using a nebulizer	30	27	49	59	21	14	ns
Inserting a nasogastric tube	17	17	32	39	52	44	ns
Urinary catheterization	28	37	47	41	25	22	ns
Control of haemorrhage	21	22	55	53	24	25	ns

ns = not significant; RMC = reformed medical curriculum; TMC = traditional medical curriculum

of graduates from the RMC as better prepared for the role of PRHO than the last two cohorts of the TMC. From the results it can be argued that the RMC is producing a different kind of PRHO compared with the TMC. Certainly, it is possible to suggest that the variables which showed significant improvements when comparing TMC with RMC PRHOs can be linked to curriculum reform.

**Possible links to curriculum reform**

Students now have structured communication skills classes in their curriculum and are encouraged to present to and collaborate with each other in PBL sessions. This should account for the improvement in ‘communicating effectively’. The fact that 30% of the clinical placements in the RMC are spent in the community compared with 4 weeks only in the TMC would explain the significant increase in ‘understanding the relationship between primary and social care and hospital care’.

Through community placements, students are encouraged to be aware of the role of the patient in society and one of the main themes that run through the curriculum in the PBL scenarios is ‘individuals, groups and society’ which could offer an explanation for why there was an improvement in ‘recognizing the social and emotional factors in illness and treatment’. These factors could also explain why supervisors feel the PRHOs have improved regarding ‘providing appropriate care for people of different cultures’.

Improvement in ‘managing time effectively’ correlates with the greater clinical exposure, particularly in the final year and the ‘shadow’ attachment where students witness first hand the pressures of being a junior doctor and what their role will be after graduation. It is also possible that the RMC students benefit from having more freedom to manage their own study time than TMC students while working through PBL scenarios and choosing their own special study modules.

The greater competency recorded in ‘using informatics as a tool in medical practice’ may be down to students who have graduated more recently being more accustomed to using computers whether at

home or in school. It may also be down to the emphasis in the curriculum on finding evidence when working through the PBL cases and using the Internet for literature searches. This in turn may have helped lead to a greater improvement in ‘understanding the purpose of audit, peer review and appraisal’, and ‘understanding evidence-based medicine’.

The use of the portfolio in the final year and the teamwork needed in PBL sessions should have encouraged a greater understanding of peer review and appraisal, while students are assessed on understanding evidence-based medicine in the portfolio. Many of the hospital placements and special study modules encourage the students to undertake audits. Legal and ethical issues are written into PBL scenarios and students are assessed on these during the course which should account for the improvement in ‘understanding legal and ethical issues’. The trend for students showing a greater ability at ‘coping with uncertainty’ could be down to the increased clinical exposure in the final year or the uncertain nature of working through PBL scenarios. While none of the variables that have improved are solely down to the introduction of PBL it is possible to argue that the PBL process has had an influence in at least eight of the ten variables discussed above.

The significant decrease relating to ‘diagnosis, decision making and the provision of treatment including prescribing’ and ‘understanding disease processes’ is something of a concern – these two variables overlap to a large extent. The introduction of PBL into a medical curriculum can create short-term but often unfounded uncertainty about knowledge base (Kaufmann and Mann, 1998; Jones et al, 2002; Prince et al, 2003) which may lead to a lack of confidence in diagnosis. It may be that these skills are developed through the PRHO year, particularly diagnosis and decision-making.

**Improving learning**

One of the aims of *The New Doctor* (GMC, 1997) was to create conditions to improve the learning of PRHOs and supervision by senior staff reducing the responsibility on PRHOs. The revised *New Doctor* (GMC, 2005a) places emphasis on understanding evidence-based medicine, which the RMC graduate PRHOs

are seen as more competent at by the supervisors. It also stresses that there should be senior supervision for diagnosis and treatments. Liverpool students are made aware of GMC documents which highlight the need to recognize limits of competence and consult colleagues (GMC, 2005b). These results could be part of a trend in recent years which sees junior doctors, fearing litigation themselves, passing cases on for senior review or undertaking ‘defensive medicine’ (Studdert et al, 2005). Liverpool students are assessed on diagnosis and managements skills in the final year portfolio and in objective structured clinical examination (OSCE) stations earlier in the curriculum. If the final year supervisors have concerns about this then students will not graduate from the course.

It has also been reported that knowledge of aspects of acute care of PRHOs and senior house officers in the UK is lacking (Smith and Poplett, 2002). There is widespread concern throughout the UK about whether PRHOs have the knowledge and skills to prescribe effectively on appointment (Farrah, 2002). A comprehensive literature search reveals very little regarding these areas for PRHOs. Also, there are no significant differences between two other questionnaire variables ‘writing a prescription’ and ‘making appropriate use of laboratory and other diagnostic services’. In fact both these variables, essential factors in patient management show improvement in favour of the RMC graduates. Sixty four supervisors completed questionnaires for the last cohort of the TMC and the first cohort of the RMC. This group did not see a significant difference between TMC and RMC graduates regarding ‘diagnosis, decision making and the provision of treatment’ and ‘understanding disease processes’ but did see the improvements in competencies with the study population as a whole.

**Practical skills**

It is surprising that more significant improvements were not observed for practical skills considering the additional clinical skills training students now receive. This may be a consequence of the blurring of the skills which PRHOs and nurses (Vallis et al, 2004) are expected to undertake. It is also important to remember that the supervisors might not necessarily see

the PRHOs carrying out all the practical procedures listed on the questionnaire. The results indicate, however, that the supervisors do regard the PRHOs as being competent particularly in skills such as venepuncture, cardiopulmonary resuscitation, catheterization and keeping accurate records, all of which are important practical skills for PRHOs.

The qualitative part of this study demonstrates that, when interviewed, supervisors feel the PRHOs are better prepared in this area and that it is those kind of clinical skills they expect from PRHOs, rather than skills such as suturing or inserting a nasogastric tube (Watmough et al, 2004). This study also showed that the supervisors felt that the PBL curriculum graduates were better prepared for the role of PRHO. The supervisors were also asked which of the skills listed on the questionnaire were most important for their PRHOs. The five most popular answers were ‘communicating effectively’, ‘working in team’, ‘being aware of limitations’, ‘keeping accurate records’ and ‘managing time effectively’ – all variables which scored well on the questionnaire results.

*The New Doctor* (GMC, 1997) gave a blueprint for deaneries when organizing PRHO training and the postgraduate dean is responsible for ensuring that trainees meet these standards so they can enter the full medical register. Similarly, *Tomorrow’s Doctors* (GMC, 1993) gave a blueprint for the content of medical curricula and this study links the recommendations in both these documents from an undergraduate to postgraduate setting.

**The foundation programme**

The PRHO year itself has undergone reforms recently with the introduction of foundation programmes (Department of Health, 2004) and the introduction of an updated version of *The New Doctor* (2005). The foundation programme aims to develop generic skill acquisition over a closely supervised 2-year period which includes developing confidence in diagnosis and managing acutely ill patients. Students at Liverpool undertake portfolio learning using similar assessment procedures to those they will experience during the foundation programme. Using the GMC guidelines (GMC, 2005a) for final year medical students and foundation 1 (F1) and F2 trainees should ensure a

seamless transition from the fourth year of medical school to the third postgraduate year. The introduction of the foundation programme and portfolio learning in the final year of the RMC now means that the essential skills of junior doctors required by the GMC can now be integrated, monitored and developed over a 3-year period.

**Conclusions**

If midpoint, or ‘quite well prepared’ is taken as the minimum competency level (Jones et al, 2001, 2002) then it can be seen as heartening that the majority of respondents rated the PRHOs from the PBL curriculum at this level and above on all the competencies listed on the questionnaire and that 25 of the 31 questionnaire variables had shown an improvement on the midpoint scales. These results show that curriculum reform can produce PRHOs who are perceived by educational supervisors as reaching the competencies required by *The New Doctor*. The perceived decreases may be rectified by the introduction of the 2-year foundation programme and closer supervision and assessment of these skills over a 3-year period which includes the final undergraduate year. **BJHM**

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**KEY POINTS**

- Linking assessment through portfolios between the final year and the foundation programmes could be a way of integrating learning between the undergraduate and postgraduate setting.
- Students and junior doctors can be assessed on learning the key skills expected by the General Medical Council from the beginning of the final year to the end of the second foundation year.
- Educational supervisors recognize differences in competencies between graduates of traditional and problem-based learning curricula.
- Educational placements on the undergraduate course can influence preregistration house officer performance.