Teaching of occupational medicine to undergraduates in UK schools of medicine

PA Wynn,1 Tar-Ching Au,2 Nerys R Williams3 & Malcolm Harrington1

Objectives To assess any recent change in the commitment to occupational medicine teaching in UK undergraduate medical curricula.

Design A questionnaire survey of the teaching of occupational medicine to undergraduates in all medical schools listed in the UK Universities and Colleges Admissions Service prospectus for 1999–2000 (n = 24).

Results Nineteen UK schools medical schools returned a completed questionnaire, giving a response rate of 79%. A comparison of results from this survey with previous surveys of teaching of occupational medicine to undergraduates in the UK shows that fewer schools now provide lectures, project work or ward-based tuition in the subject. Workplace visits were not undertaken by any institution. Only two of the schools setting an examination question also had a syllabus.

Conclusion Despite the prominence given to issues related to occupational health in recent UK government policy, this study suggests a declining commitment to occupational medicine on the part of UK medical schools. Urgent action needs to be taken to address the lack of training in occupational medicine in UK medical schools.

Keywords education, medical, undergraduate/organization; occupational therapy/education; teaching; questionnaires; Great Britain; curriculum.

Introduction Over the past 30 years, national and international governmental bodies and medical authorities have reiterated the importance of medical input into occupational health issues and the desirability of training in the discipline at medical undergraduate level.1–3 This has recently been repeated by the UK Department of Health as part of its ‘Our Healthier Nation’ initiative.4 The Health and Safety Executive (HSE) strategy to improve access to occupational health support recommends that ‘more time should be given at an appropriate stage in undergraduate medical training to promote awareness of occupational health issues and the control of work-related ill-health’.5 These reports recognize that most people will spend a third of their adult lives at work and that the workplace represents both a potential hazard to health and a forum for health promotion initiatives. The economic importance of both absence due to sickness and early retirement due to ill-health, and the need for appropriate rehabilitation strategies, contribute to the current political agenda.6

Waldron7 and Harrington et al.8 published reports on the levels of undergraduate teaching in occupational medicine in UK medical schools. In 1989, Harrington found the number of schools undertaking formal instruction in occupational medicine had increased to 92% from the 60% found in 1974. However the Harrington study reported a wide variation in hours of teaching, from nil to 10 hours, with the majority of medical schools without an academic department of occupational medicine teaching five or fewer hours. This contrasted with the higher levels of tuition undertaken in many overseas medical schools,1,9

The numbers of doctors trained in occupational medicine remains small, with an average of 50 awards of Associateship and 20–30 awards of Membership (accredited specialist) of the Faculty of Occupational Medicine (FOM) per year. While employees of small businesses (<51 employees) account for 45% of non public sector employment,5 employees of organizations with fewer than 500 staff usually have no access to any occupational health advice. The teaching of occupational medicine to undergraduates is therefore vital as most work-related health problems will be managed
by general practitioners or hospital doctors such as respiratory or dermatology specialists. An understanding of the range of hazardous exposures commonly experienced by their working patients, health and safety legislation and organizational structures will allow doctors to dispense appropriate advice to patients and employers about disability, workplace adjustment and rehabilitation back to the workplace.

In recent years the introduction of new legislation enabling health care staff to have a significant impact on the management of health issues in the workplace has further reinforced the case for more teaching of occupational medicine. In addition, government initiatives such as ‘Our Healthier Nation’ and the HSE’s ‘Good Health is Good Business’ have emphasized the importance of the workplace in the primary prevention of the major causes of morbidity and mortality in the UK as well as reducing the burden of work-related ill-health. The National Health Service (NHS) in particular has been identified as a site for the development of ‘best practice’ in such activities.

This study aims to assess any change in commitment to the teaching of occupational medicine in the undergraduate medical curricula since the earlier studies in light of the importance of occupational medicine to government strategies and initiatives.

**Methods**

A questionnaire covering issues related to undergraduate teaching was designed. Questions covered the number of hours of lectures, seminars, project work, ward-based tuition, workplace visits and electives; the module in which teaching of occupational medicine took place; the presence of an occupational medicine syllabus; the testing of occupational medicine knowledge in end of year examinations; and the subjects related to occupational medicine covered throughout the undergraduate curriculum. This information, in part, repeated areas of questioning in the previous studies by Harrington and Waldron. The questionnaire was piloted in one medical school with an academic department of occupational health. The finalized questionnaire was then sent to the tutor responsible for health and safety/occupational health training, via the head of the academic Department of Public Health, in all undergraduate schools of medicine in the UK (n = 24). The full list of medical schools was obtained from the Universities and Colleges Admissions Service list of undergraduate courses for the year 1999–2000, and the study undertaken in summer 2000. Non-responders were sent a reminder and a further questionnaire after 4 weeks in an attempt to improve response rates.

**Results**

A total of 19 medical schools returned a completed questionnaire, giving a response rate of 79%. There was no indication that the five non-responders were in any major way different from the responders. Thirteen (68%) responders indicated provision of some specific occupational medicine teaching as part of a dedicated occupational health or public health module. Of the six remaining schools, three covered elements of occupational medicine in relevant lectures elsewhere in the curriculum, two did not know if any occupational medicine teaching was undertaken in other areas of the curriculum, and one offered an optional special study module only (Table 1).

Hours of lectures and seminars in those with specific occupational medicine lectures ranged from one to 24 hours with a mode of 2 hours (Table 2).

Three UK schools offered project work in occupational medicine; all of these also ran lectures and seminars. Ward work was offered by only one school, which also provided 18 hours of seminars and 6 hours of lectures. This was described in terms of an

**Table 1 Specific occupational medicine teaching in respondent UK medical schools**

<table>
<thead>
<tr>
<th>Year</th>
<th>1989</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of schools</td>
<td>(n = 27)</td>
<td>%</td>
</tr>
<tr>
<td>Lectures</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>Seminars/tutorials</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>Workplace visit</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>Project work</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Electives</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Ward-based tuition</td>
<td>4</td>
<td>14.8</td>
</tr>
</tbody>
</table>

**Key learning points**

This study provides evidence of a decline in the teaching of occupational medicine to undergraduate medical students in the UK.

This decline may lead to doctors being inadequately prepared to recognize and manage occupationally related ill health or advise on fitness for work. Both of these areas are fundamental to medical practice in an industrialized society and are currently attracting government attention.

The decline in academic occupational medicine in the UK should be reversed.

Higher priority should be given to the teaching and examination in occupational medicine of undergraduate medical students in the UK.
introductory week to Health and Safety on the wards for students. Elective or project work was offered by eight schools, in all but one as a student-selected option. None of the schools arranged workplace visits for undergraduates.

All schools were asked if tuition was provided in some form in a range of major areas of occupational medicine, whether or not they had specific occupational medicine lectures (Table 3). Occupational respiratory disease was the most frequently covered issue. Occupationally related stress and musculo-skeletal disorders (the largest sources of morbidity leading to sickness absence from work due to sickness) were addressed by less than two thirds of courses.

Only four schools had an occupational medicine syllabus. Of the six schools setting examination questions, half were set in the first 3 years of the undergraduate medical course and half during the final 2 years. Only two schools setting an examination question also had a syllabus.

Discussion

This study provides evidence that the number of hours allocated to undergraduate teaching of occupational medicine in the UK is in decline, with fewer schools providing lectures, project work or ward-based tuition in the subject. The discontinuation of workplace visits for students has been our recent experience in Birmingham, and none of the respondents in this survey indicated any provision of workplace visits for medical undergraduates. There are several possible reasons for this. These visits require considerable organizational effort, especially with large student numbers. Local workplaces, especially those with smaller premises, and those requiring provision of complete sets of personal protective equipment and clothing for visitors, are less inclined to accommodate large groups of visitors. Visits are also becoming more difficult to organize because many industries are out-sourcing their occupational health facilities, with the result that there are fewer local in-house occupational health contacts with an understanding of what is required for student visits. The pressures on undergraduates curriculum time and expansion in student numbers have resulted in a reduction in the number of hours provided for occupational medicine instruction, particularly in the form of workplace visits, in UK medical schools. These pressures are not unique to the UK but also occur in other EU countries and in the USA.

A study conducted in the USA investigated the background of medical students, interns and clinicians and their attitude to occupational medicine. Of 182 candidates surveyed, 78% were from professional/managerial family backgrounds and only one from an unskilled manufacturing background. Those from professional backgrounds gave occupational medicine low priority compared to those from non-professional backgrounds. With many UK students from similar social groups, the loss of some form of workplace visit could remove an opportunity for students to understand the nature of types of work experienced by their future patients.

No uniform format for the delivery of occupational medicine teaching was found. Instead, there was varying emphasis on issues related to the student’s own health and safety in the hospital environment and work-related health issues of more general significance to their patients.

<table>
<thead>
<tr>
<th>Study</th>
<th>Response rate</th>
<th>%</th>
<th>Unspecified</th>
<th>≤2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>≥6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974 Waldron</td>
<td>25/30</td>
<td>83</td>
<td>4.0% (1)</td>
<td>40.0% (10)</td>
<td>8.0% (2)</td>
<td>4.0% (1)</td>
<td>8.0% (2)</td>
<td>8.0% (2)</td>
</tr>
<tr>
<td>1989 Harrington</td>
<td>27/27</td>
<td>100</td>
<td>0</td>
<td>7.4% (2)</td>
<td>25.9% (7)</td>
<td>18.5% (5)</td>
<td>14.8% (4)</td>
<td>7.4% (2)</td>
</tr>
<tr>
<td>2000 Wynn</td>
<td>19/24</td>
<td>79</td>
<td>0</td>
<td>31.6% (6)</td>
<td>36.8% (7)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject area</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational respiratory disease</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Health and safety risks to doctors in the clinical environment</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Occupationalally acquired infections</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Occupational stress</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Occupational-related musculo-skeletal disorders</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Occupational skin disease</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Occupational toxicology e.g. lead</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Risk assessment in the workplace</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Environmental impact of industrial activity</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Preparation for Health and Safety responsibility in relation to future roles as employer or manager</td>
<td>4</td>
<td>21</td>
</tr>
</tbody>
</table>
Occupational medicine is not a compulsory part of the undergraduate medical curriculum. Indeed only a minority of schools had a syllabus for occupational medicine. Institutions with a traditionally strong academic base in occupational medicine were more likely to have a syllabus, set examination questions, and cover a wider range of occupational medicine issues. Time constraints compel different subjects and disciplines to compete for time slots in the medical curriculum. Unfortunately, occupational medicine is often not viewed as a core subject, although its importance in the practice or preventive medicine is well-recognized.

Half the schools that set an examination question on the subject do so in the first 3 years of the undergraduate programme. It is possible that a lack of basic clinical knowledge at the time of occupational medicine teaching may reduce the impact of any teaching undertaken.

The teaching of occupational medicine within related lectures in the mainstream medical curriculum remains widespread. It is unlikely that all aspects of occupational medicine can be covered within standard target organ lectures. The major causes of occupational morbidity are related to psychological disorders, such as stress, and musculoskeletal problems, which are covered in some form by only 63% of undergraduate occupational medicine curricula. In a UK Delphi exercise to rank research priorities among academic and industry occupational health doctors, after musculoskeletal disorders, skin disorders and the environmental impact of industrial activity were rated as high priority. However, these topics are covered by only 53% and 47% of the courses surveyed in this study. This reflects a mismatch between expressed needs and training provisions for medical students for workplace ill-health.

A lack of understanding of the physical, chemical, biological and psycho-social hazards to which many workers are exposed can affect doctors’ understanding of the significance their patients place upon their symptoms. Lack of appropriate training can produce doctors who are ill-equipped to meet government expectations.

Conclusions
The teaching of occupational medicine should not be permitted to wither away. Consideration should be given to making the subject compulsory at undergraduate level in order that the holistic health needs of patients can be addressed. Clear learning objectives for undergraduates can be set and consideration given to novel methods of delivery of teaching, such as internet based tutorials. Examination questions can be included on specific aspects of occupational medicine to avoid it being perceived as a ‘soft’ subject by students. If students continue to have less experience of the subject, fewer qualified doctors are likely to pursue occupational health as a career, thus further diminish sources of advice on work-related health issues for employers and employees. This will also further reduce the academic basis of occupational medicine in the UK. Action needs to be taken urgently to address the lack of training in occupational medicine in UK medical schools.

Our recommendations would include the development and acceptance of a core curriculum in occupational medicine for undergraduates, similar to that developed for postgraduate training in occupational medicine by the Faculty of Occupational Medicine of the Royal College of Physicians (London) and similar organizations in other countries. The production of teaching materials can be shared between university departments of occupational medicine, and this could include video footage or work activities, slides of occupational pathology or illustrations of safe and unsafe systems of work. Collaboration between departments can also extend to the development of web-based teaching, question banks for student assessment, production of self-directed learning packages, and case-studies for small group interactive tutorials. Ultimately, more appointments in academic occupational health would increase the manpower and resources available for such co-operative efforts. The drive for this in the UK may well come from professional bodies such as the FOM, HSE and the NHS.

Contributors
All four authors planned, discussed and agreed the strategy and scope for the study. PAW collated the data and performed the initial analysis. All four authors worked on the submitted version of the paper. PAW and T-CA revised the paper in accordance with the referees’ comments.

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