Undergraduate occupational health teaching in British medical schools

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Occupational health is a discipline concerned with the effects of work on health and the influence of pre-existent health problems on the capacity to work. The teaching of the subject to those who care for the health of the working population can be construed as important to the economic well-being of the country—which, after all, depends on the maintenance and promotion of a healthy workforce.

Occupational medicine is recognised as a specialty by the Joint Committee for Higher Medical Training. Most of the teaching has been traditionally at postgraduate level, though some exposure to the subject during the undergraduate years would seem to be essential. The basis for this conclusion is two-fold: most people at work do not have access to occupational health specialists at their place of work [1], and thus any work-related problem will be referred to hospital doctors or general practitioners. In our experience the work factor in health issues is rarely well covered by these doctors, often to the detriment of the patient and the employer alike. Secondly, the toll of occupational injury and disease is still unacceptably severe. In the UK, each year some 700 people are killed in work accidents, 12,000 are injured [2], whilst the ‘lost time’ from compensable occupational diseases—officially stated as 50 lost days per 1,000 working population—is probably an underestimate by at least four-fold [3]. Overall, work may well be the direct or indirect cause of 20% of all deaths in males of employable age [4], with cancers attributable to occupational accounting for 5–10% of the total [5]. In support of this concern, the Chairman of the Health and Safety Commission recently stated: ‘in Britain today more people die from occupational disease than from accidents at work, but nearly half of the working population has no access to an occupational health service’ [6]. Thus the formulation of the poor medical management performance of doctors and the severe toll on the health of working patients leads us, as doctors in this specialty, to argue forcibly for better education and training. Indeed, the employers of the great majority of the hundreds of thousands of small workplaces in Britain and of a sizeable proportion of large ones (such as many NHS regional boards) do not have access to a physician trained in occupational health. When occupational health care is provided, it is usually based on the part-time employment of general practitioners who have normally had no training in the subject and who often therefore do what management expects of them, namely routine pre-employment health checks and examinations of workers being considered for ill-health retirement. The number of physicians who can be considered to have been formally trained, that is those holding the qualifications of the Faculty of Occupational Medicine, is always likely to be too small (currently some 1,600) to cope with the overall needs of industry for proper occupational health care. Thus, if industry is to be provided with an appropriate service which takes in prevention and recognition of diseases and accidents in the workplace, rehabilitation and redeployment of disabled workers and, increasingly, promotion of positive health initiators, it is apparent that, on qualification, all doctors should have some knowledge of this field of medicine on which to base postgraduate training should they so desire at a later stage. That occupational health should be part of the undergraduate curriculum is the view of the Royal College of General Practitioners [7], the General Medical Council [8] and the World Health Organization [9]. The House of Lords Select Committee on Occupational Health and Hygiene Services in 1983 stated ‘The Committee were disturbed to find that the amount of undergraduate tuition given to occupational health varied widely. They recommend that every medical student should be given some tuition in occupational health [10].’

Clearly, there is a general agreement that occupational health, although a minor undergraduate subject, does need to be covered in the curriculum of medical students and that its undoubted importance in the management of working patients needs to be understood by their medical advisers. In 1974, a survey of 25 UK medical schools reported that only 15 gave any formal teaching in occupational medicine [11]. This contrasts with the 4–30 hours tuition recently recorded as being received by all medical
students in each of eight Asian countries [12], let alone the 174 hours tuition for each Polish medical student [9]. Occupational medicine also figures much more prominently in the medical school curriculum of most European and North American centres than in the UK. Concern about the ignorance among doctors in this country about occupation and its influence on health led the Education Working Party of the Faculty of Occupational Medicine, Royal College of Physicians of London, to request that its Academic Registrar should undertake a survey of undergraduate medical teaching in the United Kingdom.

Method

The Dean of each UK medical school was approached for the name of the teacher responsible for occupational health tuition. Once identified, this individual was sent a short proforma to complete regarding lectures, seminars, project work, ward-based tuition, workplace visits and electives, during the five years of undergraduate training.

Results

In nearly half the medical schools, it was difficult to identify who, if anyone, was responsible for occupational health. Eventually though, the nine London teaching hospitals and 18 provincial medical schools returned the proformas—a 100% response.

The results of the survey are summarised in Table 1. Seven medical schools (four of them in London) provided no regular lectures in the subject and two of these schools also did not have any other form of tuition. Seminars or tutorials supplemented the lecture material in eight of the schools. Overall about half the schools stated that seminars were part of the curriculum but in only one school did this exceed three hours tuition. The total number of hours devoted to lectures, seminars and/or tutorials is expressed graphically in Fig. 1, from which it is clear that the presence of an academic department of occupational health greatly influenced the hours devoted to the subject. Otherwise the tuition mainly took place within the departments of community medicine.

Whilst factory visits were organised in somewhat less than half the schools, six of these schools admitted that such workplace outings were, in the main, ‘occasional’. Optional project work in occupational health formed an integral part of the community medicine programme in four of the schools and did so ‘occasionally’ in a fifth.

Ward-based tuition was a rarity. Electives were also unusual although two schools regularly sent students on occupational medicine based trips at home or abroad.

Fig. 1. Time allocated by medical schools in 1987 for teaching occupational medicine to undergraduates. The darker shaded area indicates medical schools with an academic department of occupational health.

Discussion

Clearly, there is no uniform pattern of undergraduate medical teaching in occupational health. The majority of schools provide all students with some teaching. In a small minority this tuition forms an integrated part of the curriculum with options for project work and elective periods. Others, particularly the majority of London teaching hospitals and some of the prestigious provincial and Scottish schools, provide little or nothing.

There are great pressures on medical curriculum time. Nevertheless the type and nature of the responses from medical schools in this study indicate that apathy, indifference or ignorance explain at least part of the poor showing of the subject. Even where teaching did take place, it was unusual to see this as a logical integrated part of the undergraduate teaching programme. More commonly, the lecture, film or factory visit was an appendage with no attempt to demonstrate its relevance to the student.

Although hospital wards frequently contain a high proportion of older patients, those patients of working age provide clinical opportunities to discuss the relevance of their illness to their occupation, both in terms of possible aetiological factors and in relation to how the illness may affect their ability to return to employment. Nevertheless, the encouragement by the Royal Colleges, the General Medical Council and the House of Lords to introduce such tuition appears to have cut little ice with the medical schools. In this respect, the pattern of tuition appears to have improved little since the last survey in 1974. If occupational medicine is to attain the higher profile at

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**Table 1. Findings from a survey of 27 medical schools on the provisions for undergraduate education in occupational health in the UK in 1987**

| Type of tuition    | Some teaching | No teaching |
|--------------------|---------------|-------------|
| Lectures           | 21            | 6           |
| Seminars/tutorials | 14            | 13          |
| Factory visits     | 11            | 16          |
| Projects           | 5             | 22          |
| Electives          | 5             | 22          |
| Ward-based tuition | 4             | 23          |
undergraduate level that it deserves, how can this be achieved in the majority of schools without an academic department in the subject? Thought needs to be given to the appropriate type and style of tuition and to the amount of time required to cover minimum agreed teaching objectives. The present haphazard system of tuition is not only out of step with schools in most other developed and underdeveloped countries, but also leads to a concern for the well-being of patients who are currently being short-changed in terms of the medical management they should expect as the norm. An improvement in the scope and content of occupational health teaching would not only bring the UK more in line with other countries but would reflect the changing attitudes in medical school training with its shift towards preventive medicine and the need to view the patient in the context of his or her social and environmental milieu. Failure to do so not only affects the patients but is also detrimental to the economic performance of the country.

The current problems that beset academic medicine make it unrealistic to expect new departments of occupational health to be set up. However, those same pressures make it likely that some departmental amalgamations will take place over the next few years. In particular, departments of community medicine and general practice, with their traditional population-based and individual-based perspectives [13], seem particularly suitable to take on the role of teaching the principles of occupational health, appointing teachers in the discipline as opportunities present. Both these departments and the disciplines they represent would gain from expanding their interests in this way. At the same time, medical schools should consider some specific teaching of occupational factors in disease by physicians (such as dermatologists and chest physicians) who already have a natural interest in the subject.

Lectures are clearly the easiest way to provide information for large intakes of medical students, but they are probably the least effective means of imparting knowledge to individuals. Small group teaching, problem-solving exercises, role playing, ward and practice-based case studies, factory visits, and project work are more time-consuming but more valuable to the students. Attachment to an occupational health service during formal training or at elective period time could supplement this experience. A possible approach is to provide some lectures for all students as part of a community orientated programme with some organ system based teaching sessions in collaboration with the hospital clinicians, and to offer project or elective options for some students. The total time to provide basic tuition need not exceed 6-10 hours for everyone. A motivated minority could receive additional support. Occupational health should also figure in end-of-year or final examinations. This amount of subject coverage already occurs in some medical schools and the suggested programme can hardly be described as detrimental to the coverage of mainstream subjects. Each medical school would obviously make use of local expertise but, as a guide to teaching objectives, we suggest the following framework should be considered as a basis for further debate.

An educational framework for teaching undergraduate occupational medicine

Undergraduate occupational medicine teaching should be closely linked not only with clinical cases in hospitals or general practice but also to the teaching of demography, behavioural science, epidemiology and environmental health. As far as possible, all students should have the opportunity of at least one session with an occupational physician in a factory or other workplace.

By the end of the course, the student should:

1. be able to define the major occupational health problems in modern Britain in terms of clinical features, groups at risk and the workplace characteristics that produce these effects;
2. be familiar with the concepts of biological and environmental monitoring of workplace hazards and know something of measures that can be taken to control them;
3. be able to take a good occupational history and consider the relevance of such workplace exposures to the patient’s present problems;
4. be aware of the physician’s responsibility for notifying occupationally related accidents and illnesses both for prevention and state compensation purposes;
5. understand the roles, functions and responsibilities of occupational physicians, the Employment Medical Advisory Service and other occupational health practitioners such as nurses, hygienists, safety practitioners and factory inspectors;
6. be aware of the opportunities and value of undertaking general health promotion activities in the workplace;
7. be able to suggest ways in which work can be modified to support less fit or handicapped people.

For supplementary information please see the publications listed in Further Reading at the end of the References.

It is our view that the minimum desiderata for occupational health teaching at undergraduate medical schools should be drafted and then submitted to the General Medical Council for approval and subsequent implementation. We hope that this article might serve as the stimulus to start that process.

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References

1. Health and Safety Commission (1977) Occupational health services: the way ahead. London: HSC.
2. Chief Inspector of Factories (1986) Annual report. London: HMSO.
Environmental health, 1884

Before accepting that health consciousness appeared in the 1980s, look at the London Health Exhibition of 1884. Open for six months, it was international, successful and profitable. Its four million visitors clearly indicated the public’s consciousness of health. One of its organisers, Dr Hart, Chairman of the National Health Society and of the Smoke Abatement Institute, wrote an account of this major event. He pointed out that health exhibitions ‘belonged altogether to quite modern history’ as ‘the science and art of sanitation’ was equally new.

Ever since the Prince Consort’s Crystal Palace, Victorians loved exhibitions. The health ball was set rolling in 1871 by the Social Science Association, followed by the Sanitary Institute in 1879. It was the Prince of Wales who desired to see an exhibition ‘that would embrace the conditions of health in so far as, like food, clothes and dwellings, they fall under the head of hygiene.’ The organisers adopted the word ‘health’ because it was Saxon and so preferred to ‘the new scientific word hygiene.’

The main sections of the exhibition included food, smoke abatement with ventilation and heating, sanitary and unsanitary [sic] building and, newest of all, laboratory services. There was some objection to the food exhibit, which was said to be ‘more of a market,’ but it was stressed that the nutritional value, additives and adulteration of food were of key importance. Control of the purity of food was considered to be better in Paris than in London, but no comparison of cuisines was attempted. The building section was mostly laid out by the Guild of Plumbers and the Institute of British Architects. The laboratory display was in the hands of Mr Watson Cheyne and Professor Corfield. The meteorological laboratory demonstrated chemical analyses of drinking water, sewage and air. The new science of bacteriology was demonstrated with the help of Robert Koch. There was an exhibit to show Pasteur’s research, particularly of his work for brewing and baking. Mr Galton had an anthropomorphic laboratory. It was hoped that the laboratory demonstrations would stimulate the foundation of laboratories dedicated to public health.

Throughout the exhibition lectures were given and working parties prepared reports. The result was a positive library of publications. Health in diet, dwellings and civil life, and general hygiene each covered three volumes: one of lectures, one of reports and the third a handbook on the subject. ‘Mrs Gladstone kindly manifested her interest in the Exhibition by writing a work on Healthy bedrooms and nurseries.’

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