A spoonful of sugar? *Tomorrow's Doctors* 2002

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Background

In 1993, the General Medical Council (GMC) published the first version of *Tomorrow's Doctors* [1]. This served as the blueprint for a redesign — in some cases a radical redesign — of the undergraduate medical curriculum in UK medical schools. This document signalled a significant change in the form of guidance given by the GMC on undergraduate medical education, in part driven by a widely felt need to reduce to a minimum the factual load within the undergraduate curriculum. The emphasis moved to an integrated approach, linked to problem-based and lifelong learning, that included the development of a range of skills and attitudes, as well as specific knowledge objectives. Although many of the changes have been for the better, there have been concerns that teaching in some disciplines, including clinical pharmacology and therapeutics, may have suffered. The GMC did identify 'the principles of therapy' as key knowledge objectives, but it was disappointing that therapeutics was not identified as a key skill alongside history taking, patient examination, investigation and management planning. In addition, no specific guidance was given on assessment, and as any teacher knows, assessment both drives and helps to consolidate learning. In large part as a result of the GMC document, clinical pharmacology and therapeutics teaching has suffered in the past few years, even though prescribing is a core skill for all doctors [2, 3], and errors in prescribing are a major and growing risk to patients [4, 5]. Indeed, it has now reached the point where medical students themselves are publicly expressing concern about the lack of teaching in this area [6]. In light of these concerns the GMC's revised recommendations merit careful consideration.

Tomorrow's Doctors 2002

July 2002 saw the publication of a new version of *Tomorrow's Doctors* [7], based on a series of informal visits to

medical schools between 1998 and 2001, a review of strengths and weaknesses of the existing recommendations, and further developments in educational theory and professional practice. Importantly, it replaces rather than supplements the previous guidance. The new guidance is designed to identify the knowledge, skills, attitudes and behaviour expected of new graduates, and to achieve other objectives set out in *Good Medical Practice* [8], putting the principles of medical professional practice at the centre of undergraduate education. There is a stated aim that it should be clear what students will study and be assessed on during undergraduate education, and the GMC will require all UK medical schools to set appropriate standards and rigorous assessments leading to the award of a primary medical qualification. These recommendations set the standards the GMC will use to judge the quality of undergraduate teaching and assessments in individual medical schools.

As previously, graduates are expected to know about and understand the broad principles of treatment (item 16 in [7]; Table 1). This section has now been expanded to cover some key areas, including specific reference to effective and safe use of medicines as a basis of prescribing, including side-effects, harmful interactions, antibiotic resistance and genetic indicators of the appropriateness of drugs. Importantly, this section also addresses evaluation of effectiveness against evidence, and incorporates surgical and perioperative care. Also new is the recognition of the need to take account of the patients' own views and beliefs, and of the growing use of complementary therapies and their potential for interaction with conventional medicines (item 18). The section on clinical skills (item 19) now also makes it clear that graduates must be able to go beyond a management plan, based on history, examination and relevant investigations, to work out drug doses, record outcomes, and write safe prescriptions for different types of drugs. In addition, they are expected to gain practical skills in cannulating veins, and giving intravenous, subcutaneous and intramuscular injections. Importantly, and of undoubted practical relevance in therapeutics, they are expected to know how errors can happen in practice and to apply these principles in risk management (items 4

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Table 1 Treatment (Item 16 [7]).

Graduates must know about and understand the principles of treatment including the following:

- a. How to evaluate effectiveness against evidence.
- b. How to take account of patients' own views and beliefs when suggesting treatment options.
- c. The effective and safe use of medicines as a basis for prescribing, including side-effects, harmful interactions, antibiotic resistance and genetic indicators of the appropriateness of drugs.
- d. Providing surgical and perioperative care.
- e. Recognizing and managing acute illness.
- f. The care of people with recurrent and chronic illnesses and people with mental or physical disabilities.
- g. Rehabilitation, and care within institutions and the community.
- h. Relieving pain and distress.
- i. Palliative care, including care of the terminally ill.

and 26). Of particular importance to teaching in our specialty, and to the broader principles of good medical practice [8, 9], is that graduates are expected to be able to provide enough information about conditions and possible treatments to allow patients to make informed decisions about their care (item 30). In addition, it is recognized that students must be properly prepared for their first day as a PRHO, and need to develop the ability to prescribe drugs under the supervision of a qualified doctor and to carry out procedures involving veins (item 52).

All of this would be laudable, and undoubtedly gives considerable reassurance that the GMC is moving in the right direction so far as therapeutics is concerned. However, what potentially gives this real bite is the much greater emphasis on effective assessment. Here, valid and reliable schemes of assessment must be developed by medical schools to allow students to prove that they have achieved the curricular outcomes (items 62–64). In addition, there needs to be a clear indication of how the scheme of assessment deals with all the curricular outcomes and how individual assessments and examinations contribute to the overall assessment. For individual examinations and assessments, there also needs to be a clear indication of how the targeted curricular outcomes have been met (item 66). It will be incumbent on medical schools to set up supervisory structures that involve individuals with an appropriate range of expertise and knowledge to allow medical schools to plan curricula and associated assessments, put them into practice and review them (item 42). As before, there will be important student-selected components to the course (SSCs; items 38–41). These take up 25–33% of the course and may provide a valuable opportunity for interested undergraduates to develop a deeper understanding of therapeutics, or medicines-related audit and research, than can be

accommodated in the main course. Indeed, this may be an important opportunity to attract some individuals into our specialty.

Clinical pharmacology: A step in the right direction?

Although the revised document is unlikely to halt the progressive loss of dedicated courses in therapeutics it should nevertheless be welcomed by clinical pharmacologists as a potential turning point. The principle that all UK graduates should be demonstrably safe prescribers is now implicit in the GMC's recommendations. The challenge for the specialty will be to provide some specific guidance as to how this objective can be delivered and assessed within the curriculum. Although there have been previous recommendations about the delivery of clinical pharmacology [11], there is now a pressing need for updated guidance that is consistent with these latest recommendations. This task is currently being undertaken by the Clinical Section of the British Pharmacological Society.

A key factor in the successful implementation of this guidance will be clear leadership in prescribing and therapeutics. All medical schools should be able to identify an individual who will oversee these themes and ensure that the generic principles of safe and effective use of medicines are highlighted throughout the curriculum. It would be presumptuous to argue that this role can only be undertaken by a clinical pharmacologist. However, it is to be hoped that many medical schools will recognize that the training and background of a clinical pharmacologist makes them ideally suited to supervising the delivery and assessment of these learning objectives [3]. Too often in the past, success in linking drugs to clinical conditions has been allowed to pass as an education in therapeutics. All schools must now ensure that, in each case, students are helped to face the practical issues of weighing the risks and benefits of drug therapy, prescribing the drug, and monitoring the impact of therapy. Although the total number of licensed drugs is large student learning might be focused around a 'formulary' of 50–100 core drugs for which the indications, doses, routes of administration, contraindications and side-effects should be familiar [2].

A second vital factor will be the assessment process. All schools should be encouraged to have an assessment in the final year of the course aimed at detecting poor knowledge about drugs and deficiencies in prescribing skills. There has been a recent trend for such examinations to disappear or be integrated into other assessments. The risk of harm from inappropriate use of medicines is high [4] and is probably likely to grow if unchecked [3]. Safe and effective use of medicines is also a major factor

in clinical governance and risk management within the NHS. For these reasons, a robust assessment of prescribing competence should be mandatory and the GMC should ensure that these are verified at future site visits. Importantly, students should not be able to compensate for deficiencies by a good performance in other areas.

Although clinical pharmacologists may no longer be in a position to deliver a large part of the teaching in therapeutics, not least because our numbers are small, there is now a major opportunity to provide leadership in shaping teaching in pharmacology and therapeutics in the coming years. The recent extension of prescribing rights to nurses and pharmacists in the UK [10] has necessitated a review of the background learning required to take on this responsibility. These new prescribers are to be offered a substantial body of training in pharmacology and therapeutics. It would be regrettable and embarrassing if the training of graduates in medicine were to fall short of this standard [6]. For the majority of tomorrow's doctors, prescribing skills will be one of the main determinants of their success in delivering effective healthcare.

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