

A NEW APPROACH TO CLINICAL PHARMACY PRACTICE TEACHING IN THE FOUR-YEAR DEGREE COURSE

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This article describes a new approach to clinical pharmacy practice teaching for undergraduate students using a clinical tutor model at the school of pharmacy and pharmaceutical sciences at the University of Manchester. The results of an evaluation of the first year of the course are also reported

The Government's continuing aim to modernise the National Health Service suggests that a new approach to pharmaceutical education must be developed to produce pharmacists who are able to work within the new NHS framework and to meet the demands that this presents.^{1,2} The NHS plan³ states:

"There will be reforms to the health curricula to give everyone working in the NHS the skills and knowledge to respond effectively to the individual needs of patients. There will be new joint training across professions in communication skills. It will be a precondition of qualification to deliver patient care in the NHS that an individual has demonstrated competence in communication with patients."

The Royal Pharmaceutical Society, when considering the advent of a four-year pharmacy undergraduate degree course, stated that a patient-orientated component should be included in each year of the course.⁴ The Society recognised that patient contact in the undergraduate curriculum had been limited, particularly when compared with other health care professions. They proposed that the new degree course should include the development of students' problem-solving, clinical and communication skills, and that teaching of these skills needs to commence at an early stage in the education and training of pharmacists. The introduction of the four-year undergraduate degree course has created the need for all schools of pharmacy to review the content of the course. The University of Manchester has used this opportunity to develop a structured, hospital-based clinical pharmacy practice course which aims to address the issues raised by the Society and the extended degree course.

For a number of years, all schools of pharmacy have used the services of teacher practitioners largely funded by the community pharmacy multiples. The frequent interactions of these teacher practitioners with students throughout the course has enabled them to provide information about career opportunities in community

pharmacy. In contrast, students' exposure to secondary care practitioners has been limited. At the University of Manchester, students visited the hospital setting in the final year of their course and this was often the first exposure they had to pharmacy practice in secondary care. This came at a time when students had already made decisions about the branch of the profession in which to undertake their preregistration training. In the light of these facts, and the recent problems of recruitment and retention of pharmacists in secondary care, a need was recognised to increase the relevance and profile of hospital-based clinical teaching.

It has been suggested that clinical and practice-based topics should have a major role in the four-year pharmacy course and that introducing hospital visits may better prepare graduates for their preregistration year.⁵ By increasing the exposure of students to patients at an early stage of their degree, it is hoped that the students' understanding of patients, their diseases and drug therapy will be enhanced and that their communication skills will be further developed. This should result in graduates beginning their preregistration year with a greater appreciation of pharmaceutical care delivery. It is also hoped that these pharmacists of the future will be better equipped to meet the changing needs of the health service, be that in primary or secondary care, a need that has been highlighted previously.^{3,6} This is particularly important when considering the continued pharmaceutical

care needs of patients as they move between health care providers and the future issues that the medicines management agenda presents.⁷

Several schools of pharmacy have published articles describing teacher practitioner posts and the teaching of pharmaceutical care.⁸⁻¹² It has been suggested that teacher practitioners should meet students in the workplace rather than the lecture theatre.⁹ This has been described by other schools. However, not all modules are available for every student¹⁰ and it is often unclear whether this teaching is an adjunct to therapeutic lectures or is formally assessed.^{11,12}

THE COURSE

The new clinical pharmacy practice course at the University of Manchester is aligned more closely to the medical and nursing models where practice-based teaching during the undergraduate course operates in parallel to lectures in pathology and therapeutics. To deliver this course, three clinical tutors were appointed. Each tutor has a joint appointment with one of three teaching trusts and the University of Manchester. The roles of the tutors differ from those of traditional hospital teacher practitioners for the following reasons:

- 1 All teaching is provided at the hospital and not at the university
- 1 The tutors work as a team with the academic module leader to plan, develop and deliver the course
- 1 The use of this model has enabled the university to provide tailored training for the tutors in teaching and assessment methods (this ensures that standards and quality assurance are maintained¹³ and the same level of teaching is delivered in each hospital)

The clinical pharmacy practice course has been integrated into both the third and fourth years of the undergraduate degree course, and is a formally assessed component of the disease management modules of the MPharm degree. The course is compul-

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sory for all students, irrespective of their future career choice and selection of modules in their final year. It covers core therapeutic areas and complements university-based didactic teaching.

The overall aim of the course is to provide students with practical experience in the basic principles of common disease processes and rational drug therapy and to develop students' communication skills further. Additional aims for the early part of the course are to promote an understanding of the role of pharmacists in secondary care and to provide an environment in which students are able to consider the variety of careers available in hospital pharmacy.

STUDENT ALLOCATION

Students are allocated to one of the three teaching hospitals at the start of the third year. This means that each tutor is responsible for 80 students from both the third and fourth years (40 students from each).

The students attend their base hospital fortnightly in groups of nine or 10 for two-and-a-half hours. This provides every student with approximately 30 hours of hospital-based contact time in each year of the course. Students attend the same hospital throughout the course, thus enabling them to develop good working relationships with the tutors and to gain a thorough understanding of the working practices of their hospital. This extended contact with practising clinical pharmacists provides students with the opportunity to discuss career options in secondary care from an earlier stage in their course.

COURSE STRUCTURE AND CONTENT

The course is delivered using tutorial style teaching with practical exercises. Each tutor works with the same aims and objectives irrespective of the site on which the course is taught. The first semester of the third year consists of five sessions to introduce students to different aspects of hospital pharmacy practice. The first session is a general introduction to the hospital and is followed by four sessions covering aseptic services, medicines information, clinical pharmacy and medicines management. The second semester consists of clinical case-based tutorials that are timetabled to mirror topics covered in the disease management lectures. These practical sessions take place within two weeks of the relevant lecture, which enable students to apply knowledge gained from lectures. Clinical and communication skills are developed in each tutorial through student-led interviews with patients, drug history taking and the examination of case notes (see Panel 1).

During the fourth year, the course continues to integrate university-based didactic teaching with practical patient focused experience. Students are encouraged to become more self-directed in their study while further learning how to apply their knowledge and develop their clinical and communication skills. Clinical case-based

Panel 1: Tutorial 10 — myocardial infarction

Aim The aim of the tutorial is to introduce the students to the practical aspects of pharmaceutical care for patients during and following a myocardial infarction (MI)

Objectives By the end of the session the students should be able to:

- 1 Identify the signs and symptoms of an MI and describe the immediate treatment of a patient with a suspected MI
- 1 Discuss the practical use of drug therapy for secondary prevention of coronary heart disease, including aspirin, lipid lowering drugs, beta-blockers and ACE inhibitors, in conjunction with a reduction in coronary risk factors
- 1 Identify the key points for concordance in patients who are on secondary prevention regimens

Tutorial timetable

2.00–2.15pm	A brief review of the problems encountered in treating patients after an MI
2.15–2.30pm	An example case of a patient suffering an MI
2.30–3.30pm	Ward based work — student-led patient interviews
3.30–4.00pm	A brief report back session from student-led patient interviews
4.00–4.30pm	Student case presentations (for assessment — two each week)

tutorials continue in the first semester, and in the second semester a problem-based learning approach is employed, where students work in small groups with the aim of building their team-working skills. The students use resources available, including patients and their medical notes, to understand fully the patient cases that they have been given. The clinical areas covered in the fourth year hospital-based tutorials include the following: heart failure, respiratory disease, infections, pain, diabetes, renal and liver disease, and multiple disease states.

COURSE ASSESSMENT

Coursework for each semester in the third and fourth year forms 20 per cent of the mark for the disease management module. The students are assessed in their first semester of the third year by a series of short answer questions relating to various aspects of hospital pharmacy.

Assessment in the second semester of the third year comprises written and oral case reports relating to one patient that the student has interviewed. Students present their oral case reports to peers throughout this semester.

In the fourth year, students are assessed using group projects that culminate in poster presentations. In the first semester, students are allocated into groups of three or four and each group chooses a disease state to study, eg, asthma. Students within each group then write individual reports on the pharmaceutical care issues of one aspect of the disease, eg, inhaler devices. In the second semester, each group of students use their individual work to produce a group poster that is designed to educate patients or carers about various aspects of the disease. In this way, students are introduced to teamwork, different presentation techniques and other skills that will be used in their future careers as pharmacists.

The case presentations in the third year are assessed by the clinical tutors and all oth-

er written reports and posters are marked by the appropriate clinical tutor and an independent second marker at the university. Feedback is given to the students at the end of each semester.

STUDENT EVALUATION

An evaluation of the third year course was undertaken at the end of the first year of its operation. The current fourth year course is in its first year of operation and as such, has not yet been assessed. The objectives of the evaluation were:

- 1 To examine students' perceptions of the clinical pharmacy practice course
- 1 To examine students' perceptions of the effect of patient contact in developing their clinical and communication skills
- 1 To examine students' perceptions of the influence of the course on their clinical knowledge

Students were given an evaluation form to complete at the end of the first semester of their third year. This form was adapted from the University of Manchester standard course evaluation form. It asked students to evaluate their perceptions of the clinical pharmacy practice course. A Likert scale of 1 to 5 was used, a score of 1 being poor and 5 being excellent.

At the end of the second semester of their third year, students were asked to complete a further questionnaire which explored how the course had influenced their communication skills, confidence in talking with patients and application of clinical knowledge. The questionnaire was developed by the clinical tutors and university module leader and used a mixture of closed questions and attitudinal statements. It was piloted on colleagues and 10 third year undergraduate students to test the suitability of the questions, and for readability.

Semester 1 Students were asked to rate the clinical pharmacy practice tutorials from the first semester under four different sections, helpfulness, relevance, ease and interest. Sixty-nine (64 per cent) students completed the evaluation forms. Table 1 shows the main findings.

The results show that the students found the tutorials both helpful and relevant to their degree course. They appear to have found the tutorials relatively easy, however, the initial five sessions of semester 1 are intended only to introduce students to different aspects of hospital pharmacy.

Students were asked to rank the whole disease management module which included the lecture course taught at the university. The overall score given for the module was 4.1.

Semester 2 To evaluate semester 2, students were asked to what extent their contact with patients had influenced the development of certain skills. The questionnaire focused on the issues of student knowledge of disease processes and drug therapy and the development of communication skills. Responses were received from 93 (86 per cent) students. Seven questionnaires were insufficiently completed to include in the analysis.

At least 95 per cent of students perceived that their confidence in talking to patients and their communication and interviewing skills had developed as a result of the clinical pharmacy practice course.

Almost all students perceived that their knowledge about drugs in the body (99 per cent) and that of disease processes (98 per cent) had developed through the patient contact on the course, with the majority of students (69 per cent) stating that there had been a significant effect on this knowledge base.

DISCUSSION

The four-year MPharm degree course at the University of Manchester aims to produce pharmacy students who are committed to

TABLE 1: STUDENT EVALUATION OF THE CLINICAL PHARMACY PRACTICE COURSE (N=69)

Assessment	Student scores
Helpfulness	3.9
Relevance	4.0
Interest	3.5
Ease	2.8

Note: Likert scale used—1=poor, 5=excellent

life-long learning and who have sufficient understanding of the principles and techniques of pharmaceutical, clinical and social sciences to enable them to deliver pharmaceutical care in all health care sectors.

This article has described the new approach to clinical pharmacy practice teaching at the University of Manchester, using a clinical tutor model. This development has come at a critical time in the evolution of pharmacy undergraduate education, specifically with the advent of the four-year degree course.¹

The development of this model has enabled the delivery of a structured, hospital-based course ensuring that standardised teaching is delivered to all students within the three trusts. This was attained through the tutors attending a University-led teaching and assessment course, teaching with the same aims and objectives and regular meetings between the tutors and academic module leader to discuss the progress and development of the course. The standardised level of teaching was demonstrated through the formal assessment of students. There was no difference between the average mark attained by students attending different trusts, and an independent second marker did not identify differences between the three student cohorts.

From the teaching quality assessment perspective,¹³ the input of the clinical tutors who are all practising pharmacists was recognised. The report stated:

“Strong links with pharmacists in primary and secondary care settings, and with the pharmaceutical industry, ensures the currency of the pro-

fessional practice aspects of the teaching, both at undergraduate and postgraduate levels.”

At the beginning of the third year 36 per cent of students had experience of hospital pharmacy practice. By the end of their degree course, it is recognised that students should have an understanding of the differences in the practice of pharmacy in various health care settings.¹ This should allow graduates to make better informed decisions about their future career options. This course has ensured that all students in the third and fourth years of the MPharm course have received exposure to the practice of pharmacy in secondary care. As a result, all students should be able to make better informed decisions about where to undertake their preregistration training.

Communication skills along with the practical application of clinical knowledge and interpretation of drug therapy should be fostered as early as possible in pharmacy students' undergraduate education. The clinical tutor model was developed to enable students to acquire the skills needed to become effective pharmacists. Lecture-based teaching of therapeutics provides no opportunity for students to apply their knowledge in a practice setting. The clinical pharmacy practice course overcomes this problem as is clearly demonstrated in the evaluation of the second semester of the course. The majority of students believed that their practical skills and clinical knowledge had been enhanced as a result of the course.

The course is now an established part of the four-year pharmacy degree at the University of Manchester and continues to develop as a result of feedback from students and the work of the clinical tutors and module leader.

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REFERENCES

1. Department of Health. The new NHS — working together: securing a quality workforce for the NHS. London: Stationery Office; 1998.
2. Department of Health. Pharmacy in the future — implementing the NHS plan. London: Stationery Office; 2000.
3. Department of Health. The NHS plan. London: Stationery Office; 2000.
4. Dewdney R. The changing scene in pharmacy education. *Pharm J* 1995;255:455–8.
5. Ward A, O’Nally G, Davies G. Preparing for the preregistration year — can universities do more? *Hosp Pharm* 2000;7: 210–3.
6. Dhillon S, Duggan C. Academia must produce graduates able to practise effectively in a modern NHS. *Pharm J* 2001; 267:86.
7. National Prescribing Centre and National Primary Care Research and Development Centre. Modernising medicines management — a guide to achieving benefits for patients, professionals and the NHS; 2002. Available at www.npc.co.uk/npc_pubs_mmm.htm (accessed 19 July 2002).
8. Mason P. Pharmacy at Portsmouth University — change and challenge. *Pharm J* 2000;264:69–70.
9. Nicholls P. Pharmacy education: a way ahead? *Pharm J* 2000;264:30–31.
10. Caldwell NA, Sexton JA, Green CF, Farrar K. Pharmaceutical care: developments in undergraduate clinical teaching at Liverpool school of pharmacy. *Pharm J* 2001; 267:721–3.
11. Hatfield K, Marriott J, Harper A. Raising awareness of hospital pharmacy among undergraduate pharmacy students. *Hosp Pharm* 2000;7:199–201.
12. Hodges H, Cattell R, Cornwell A, Hall I. Clinical pharmacy teaching for undergraduates. *Pharm J* 1995;259:561–2.
13. The quality assurance agency for higher education. Subject review report Q17/2000, University of Manchester, pharmacology and pharmacy; October 1999. Available at www.qaa.ac.uk/revreps/subjrev/intro.htm (accessed 19 July 2002).