Pharmacy Education, December 2003 Vol. 3 (4), pp. 253–260

An Evaluation of an Interdisciplinary Joint Clinical Placement between Podiatry and Pharmacy Students

SIMON J. OTTER[a,*], CAROLINE J. ROBINSON[a], DELYTH JAMES[b], MARCUS C. ALLEN[b], JOHN G. DAVIES[b] and GRAHAM STEW[c]

[a]*Division of Podiatry, School of Health Professions, University of Brighton, UK;* [b]*School of Pharmacy and Biomedical Sciences, University of Brighton, UK;* [c]*Centre for Learning and Teaching, University of Brighton, UK*

(Received 15 May 2003; In final form 12 September 2003)

The aim of this study was to evaluate a new joint clinical placement for third year undergraduate Pharmacy and Podiatry students. The purpose of which was to foster interprofessional education, enhance multidisciplinary working, and improve drug history taking, analysis and evaluation for students on both courses. The study involved a pre and post semi-structured questionnaire design targeted at 93 students attending a joint clinical placement. Podiatry students reported an increase in confidence in taking a patient case history, taking and documenting a drug history and communicating with other health professionals. Smaller increases in confidence were reported in identifying medication-related problems, assessing patient compliance and understanding the pharmacological basis of disease management. Pharmacy students reported an increase in confidence for all of the above descriptors and also constructing and prioritising pharmaceutical problem lists. Neither group reported high confidence levels with regard to the ability to critically discuss disease management. This study demonstrated that an interprofessional clinical placement can be an effective learning and teaching strategy for third year undergraduate Pharmacy and Podiatry students.

Keywords: Interprofessional learning; Undergraduate; Healthcare; Pharmacy; Podiatry

INTRODUCTION

In recent years, successive governments have advocated an increase in multidisciplinary learning strategies at both pre and post registration levels in Health Care curricula (Griffiths, 1988; Secretary of State for Health, 1992; Department of Health, 1993; 2000). The term "shared learning" (also referred to as multiprofessional education and interprofessional education) has been used to describe the learning opportunities which may occur when two or more professions study together (Barr, 1994). Shared learning at third year undergraduate level in the healthcare setting has been considered by the National Health Service Executive (NHSE) to be fundamental to the development of effective multidisciplinary working (NHS Executive, 1995; 1996; 1997). This is particularly important as healthcare is increasingly being provided by multidisciplinary teams, and multiprofessional working and learning is a reality in many day-to-day clinical settings (General Medical Council, 1995). Miller and colleagues (1999) suggested that knowledge of other professions' scope of practice enables a holistic approach to problem solving and more appropriate referral patterns, together with enhanced consistency and continuity of care.

Shared learning within the Faculty of Health modular framework at the University of Brighton has been described as "a pre-emptive development designed to meet the needs of students and potential employers whilst maintaining the efficiency and the flexibility needed to enable course development and delivery," (Dawson *et al.*, 2002). Currently, undergraduate students in the disciplines of Podiatry, Physiotherapy, Occupational Therapy, Nursing and Midwifery share a number of academic modules, although little or no shared learning occurs in the clinical setting. The central philosophy underpinning shared learning is the concept that some of the content is considered "core" to all undergraduate health courses. However, the underpinning knowledge of, for example, physiology required by a podiatry student in order to manage complex foot disorders is

*Corresponding author. Address: Leaf Hospital, St Annes Rd. Eastbourne, BN21 2HW, UK. E-mail: so54@bton.ac.uk

ISSN 1560-2214 print/ISSN 1477-2701 online © 2003 Taylor & Francis Ltd
DOI: 10.1080/1560221031000162489

demonstrably different from the needs of a midwifery student who will supervise pregnancy, labour, delivery and puerperium. Authors have reported that the success of shared learning programmes has been variable (Stew, 2000; Dawson *et al.* 2002). Therefore, there is now an increasing body of opinion that shared learning may be more successful in the clinical setting. In this setting, the patient-centred approach allows health professionals to share the one domain which is truly common to all—that of providing patient care. Furthermore, the use of a more patient-centred approach to learning develops key transferable skills including communication, problem solving, clinical reasoning and information technology—skills which are much prized by employers (Cox, 1994).

With these considerations in mind, discussions took place between the Pharmacy and Podiatry Schools with regard to the learning and teaching challenges faced by their respective third year undergraduate programmes. In podiatry, one of the most significant recent developments is the provision of an extended pharmacology syllabus. Previously, extended pharmacology modules were only available at post graduate level. However, the main podiatry professional body—the Society of Chiropodists and Podiatrists—determined that pharmacology should now form a greater part of the undergraduate programme. This reflects anticipated changes to the 1968 Medicine Act, following the recommendations of the Crown report (Department of Health, 1999), which may allow podiatrists (and other healthcare professionals) to prescribe from an extended list of prescription only medicines (POMs). Clearly, the expertise of the Pharmacy department would be of particular value in meeting the learning and teaching challenges presented by this aspect of the podiatry curriculum. In the third year undergraduate pharmacy course, perennial difficulties are experienced regarding clinical placements. The aims of which are to improve students' communication skills, drug history taking, analysis and evaluation of the pharmacological basis of disease management. This has been particularly noticeable following the change from a three to a four-year degree programme placing greater demand on neighbouring hospitals with regard to placement opportunities. Given that fewer patients being admitted to hospital and a trend for a reduced length of inpatient stay, there is an increasing need to find teaching placements in an out-patient setting in order to reflect the type of drug related problems that patients experience in the primary care setting (McManus *et al.*, 1993; Dacre and Fox, 2000).

One possible solution to these educational challenges was the development of a joint clinical placement between the two departments. The Podiatry department has an on-site, out-patient, community clinical facility which receives referrals from the local NHS Trust. In contrast, the majority of clinical placements undertaken by pharmacy students are in NHS inpatient acute or tertiary care settings. It was considered that a programme of shared learning utilising the podiatric clinical facility could provide a number of perceived learning opportunities that would be advantageous to both groups of students. Academic and clinical staff from both departments have experience of a wide range of clinical placements in a variety of healthcare settings. Currently, clinical placements where students from different professions learn together using a patient centred approach are relatively rare and largely untested both within our institution and the wider higher education setting. Therefore, this joint clinical placement had a number of aims:

- develop and improve students' ability to consult with patients and take a medication history;
- develop communication skills with other health professionals; and
- improve understanding of pharmacologically based medical management.

We report on the findings of an evaluation of this joint clinical placement

METHODS

Subjects and Setting

This placement was undertaken in semester two of the students' third year. This equates to the third year for both groups of students. Owing to the inequality in the cohort size of podiatry and pharmacy courses all of the podiatry students ($n = 45$) were included in the joint placement. A stratified sample of 50% ($n = 48$) of the pharmacy students were rotated into this initial clinical placement. This sample was achieved by selecting every other student in the cohort.

Structure of the Joint Teaching Sessions

Six pharmacy students and six podiatry students took part in one clinical session for community based patients referred for podiatry treatment. A brief introductory discussion led by a clinical tutor ensured students were familiar with the aims and structure of the ensuing session. For the first part of the clinical session (45 min–1 h) a pair of students (one podiatry and one pharmacy student) took drug histories from two or three patients. For the following hour students

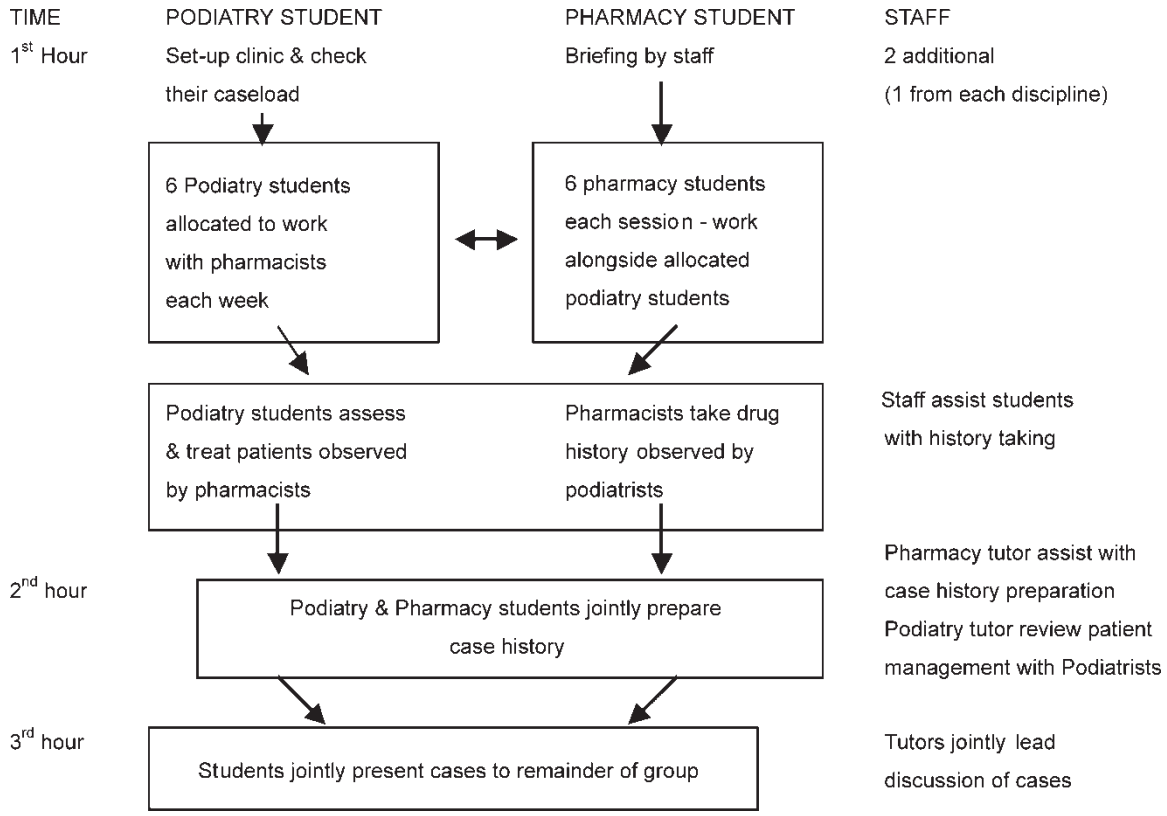

FIGURE 1 Outline of joint clinical placement session.

designed a medication care plan in agreement with a tutor for one of the patients they had taken a drug history from during the session. During this period students had access to necessary reference material. The medication care plan detailed the patient's medical history, need for podiatric care, current medication, a justification for the prescription, possible drug interactions and any suggested improvements. In the final hour of the session, each pair of students presented their medication care plan to the remainder of the group in a tutor-led seminar format. Discussion, critique and questioning was expected and encouraged. The general structure of each session is overviewed in Fig. 1.

Questionnaire Design and Data Collection

For both courses, data collection was achieved by using a semi-structured, self-administered questionnaire. This method maximised the amount of data collected while maintaining students' anonymity. Students were requested to assess their own knowledge of, and confidence in, carrying out key clinical skills before and after delivery of the joint clinical placement. These key skills included consultation skills, drug history taking and the students understanding of the pharmacological basis of disease management. These skills equated to 8 items in the podiatry students' questionnaire and 10 items in the pharmacy students' questionnaire. The first column in Tables I and II, respectively, detail these items. The difference in the questionnaires is reflected the expected extended role pharmacists have in the pharmacological basis of disease management in clinical practice. Respondents scored each questionnaire item using a four-point scale ranging from very confident to no confidence. In addition, to gain a more comprehensive insight into the students' experience of the programme, open questions were also included. Students were given the opportunity to indicate what they considered to be the most positive and negative aspects of the joint placement, together with any additional comments they wished to make.

Ethical Considerations

Prior to the joint placement both groups of students were provided with information relating to the aims and objectives of the placement together with practical details on how the placement would be structured. Following advice from the School ethics panel, ethical committee approval was not considered to be necessary as student evaluation of their learning experience forms part of the routine module evaluation process. Students were assured that

TABLE I Podiatry students' confidence prior to and following the joint clinical placement (all results are expressed as a percentage for ease of comparison)

	Very confident		Moderately confident		Little confidence		No confidence	
Activity	Before	After	Before	After	Before	After	Before	After
Gathering information from patients about their medicines	47	53	53	47	0	0	0	0
Conducting an appropriate consultation with patients	47	47	46	47	7	6	0	0
Communicating effectively with other healthcare professionals	20	35	73	65	7	0	0	0
Taking a patient's drug history	47	59	47	41	6	0	0	0
Documenting a patient's drug history	27	41	66	59	7	0	0	0
Identifying medication related problems	7	0	60	71	33	29	0	0
Assessing patients compliance with prescribed medications	7	0	53	71	40	29	0	0
Understanding the pharmacological basis of disease management	0	6	60	59	27	35	13	0

individual questionnaire responses would remain anonymous.

Data Analysis and Statistical Testing

Statistical testing was carried out using the statistical package for social sciences (SPSS version 10.05). Scores for each of the questionnaires were summed to provide a total confidence score for each student. For podiatry students the minimum score was 8 and the maximum 32. For pharmacy students the minimum score was 10 and the maximum 40. The reliability of the scale was tested for internal consistency using Cronbach alpha and the internal consistency of the scale was found to be good (Cronbach alpha = 0.87).

The total confidence scores for each student were summed to provide a mean score for each student group. This approach enabled each cohort to be compared before and after the joint placement. Changes in the mean scores over time were explored using a *t*-test to determine if students' levels of confidence or their perceived level of knowledge had improved as a result of the experience.

RESULTS

Podiatry Students

The mean total confidence score for the podiatry students group before the placement was high at 30.9 (SD 4.6). The mean confidence score for Podiatry students following the joint placement had risen to 31.3 (SD 2.8), though this increase was not statistically significant.

Prior to the commencement of the joint placement, podiatry students indicated (Table I) that they generally perceived themselves to be moderately or very confident in those activities associated with consultation and history taking skills, namely:

gathering information from patients about their medicines,
conducting an appropriate consultation with patients,
communicating effectively with other healthcare professionals,
taking a patient's drug history and
documenting a patient's drug history.

TABLE II Pharmacy students' confidence levels prior to and following the joint placement (all results are expressed as a percentage for ease of comparison)

	Very confident		Moderately confident		Little confidence		No confidence	
Activity	Before	After	Before	After	Before	After	Before	After
Gathering information from patients about their medicines	10	40	56	60	34	0	0	0
Conducting an appropriate consultation with patients	0	17	67	71	33	6	0	6
Communicating effectively with other healthcare professionals	11	28	67	66	22	6	0	0
Taking a patient's drug history	33	48	33	52	34	0	0	0
Documenting a patient's drug history	22	36	56	52	22	12	0	0
Identifying medication related problems	0	6	67	71	33	23	0	0
Assessing patients compliance with prescribed medications	0	17	45	83	55	0	0	0
Ability to construct a medical and pharmaceutical problem list	0	17	77	66	23	11	0	6
Ability to prioritise problems into high, medium and low risk	0	28	77	48	23	18	0	6
Ability to critically discuss disease management	0	0	67	66	33	28	0	6

A small proportion (6–7%) of podiatry students felt they had little or no confidence in these activities prior to the commencement of the joint clinical study. Prior to the placement a number of the podiatry students (between 7 and 40%) had more polarised views with some indicating they were very confident, but conversely others had little or no confidence in the remaining descriptors.

Identifying medication related problems
Assessing patient's compliance with prescribed medications
Understanding the pharmacological basis of disease management.

At the end of the study, podiatry students reported only a small non-significant increase in confidence associated with the activities which describe consultation and history taking skills. However, confidence levels were generally high at the start of the placement programme. With regard to those activities students reported little or no confidence in

identifying medication related problems,
assessing patient's compliance with prescribed medications and
understanding the pharmacological basis of disease management.

An increased number of podiatry students reported moderate levels of confidence in these descriptors, though few reported to be very confident in these activities.

Pharmacy Students

The mean total confidence score for pharmacy students before the joint programme was lower than the podiatry students 27.6 (SD 3.98). At the end of the study there was an overall increase in pharmacy students' confidence in all of the descriptors except for the ability to critically discuss disease management. After the programme the mean score for pharmacy students demonstrated a significant rise ($p < 0.01$) to 29.5 (SD 4.59).

Initial confidence levels among Pharmacy students were not as high as podiatry students', with the majority of students (between 33 and 77%) indicating they were only moderately confident in the descriptors listed in Table II. In contrast to the podiatry students, prior to the programme a greater number of pharmacy students than podiatrists (between 25 and 50%) indicated they had little confidence in some of the descriptors listed. In particular, those descriptors associated with consultation and history taking skills, i.e.

Gathering information from patients about their medicines.
Conducting an appropriate consultation with patients.
Communicating effectively with other healthcare professionals.
Taking a patient's drug history.
Documenting a patient's drug history.

However, like podiatrists, pharmacy students also indicated they were not particularly confident in those skills which required critical evaluation, in particular:

Constructing a medical and pharmaceutical problem list.
Prioritising problems into high, medium and low risk.
Critically discussing disease management.

Qualitative Findings

The rich data gained from the open questions answered by both groups of students are summarised in Table III following content analysis of the questionnaire responses. While not all students chose to add their comments to this section of the questionnaire, several interesting themes emerged from the responses. In particular, some podiatry students gained an improved understanding of how pharmacists interpret information gathered from patients. While for others the programme encouraged a more in-depth consideration of a patient's drug history. Although some students were more concerned about the difficulties such a joint placement presented to their clinical practice, others started to recognise their own learning needs. These themes are further explored in the discussion.

TABLE III Podiatry and Pharmacy students' comments on the pilot placement programme (number of students)

Most useful aspects of the placement programme:
Gave students more confidence regarding pharmacology (1)
Recognition of gaps in knowledge (2)
Recognition of how much information should be gathered (1)
Improved understanding of how pharmacists interpret information (7)
Joint case conferences (4)
Improved students ability to gather information from patients (1)
Encouraged more in-depth consideration of drug history (3)
Least useful aspects of the placement programme:
Increased the time pressure on students (5)
Rather crowed in clinic with pharmacy students and year 1 podiatry students with year 3 podiatry cohort (3)
Some patients had a limited drug history (3)
Some patients were difficult to interview—particularly those suffering from mental health problems (1)

DISCUSSION

Podiatry Students

Following the placement experience podiatry students reported a small increase in confidence with regard to key skills, e.g. patient consultation, communication with another health professional and gathering information about a patient's drug history. The comments made by students suggest that, in part, this confidence increase can be attributed to podiatry students having the opportunity to observe the practice of another health professional. Although it should be noted podiatry students already have had experience of patient contact for some time during their course. Shared learning in the classroom setting has not always resulted in a positive evaluation. For example, Stew (2000) reports "One lecturer stated…'*it was fascinating to note how the students sat together in their own groups; there seemed to be little interaction between the courses*.'" However, in this example of interprofessional education anecdotal comments from students together with the qualitative data highlight clear examples of students from the same and different courses learning from one another.

This joint placement was designed to be both highly patient-focused while encouraging interaction between two different health professions. Classroom teaching approaches, whilst aimed at enabling shared learning, have been criticised for providing few opportunities for students to find out how others have assimilated the same information (Miller *et al.*, 1999). The results of this joint teaching programme would suggest that some of the more positive aims of shared learning have been accomplished. In particular, the data emanating from the open questions would suggest an increased mutual understanding between professionals, the dismantling of interdisciplinary barriers and more effective teamwork. These are qualities which are thought to lead to improved healthcare (Stew, 2000). This joint clinical placement was designed to be primarily task-based, therefore, all students are working towards a common goal and so students can see more clearly the benefits of team-working and information sharing.

A small number of podiatry students commented that the increased time pressure was the least useful aspect of the joint teaching programme. Having to share clinical contact time with other students led some to comment they felt unnecessarily pressured. While students may see these circumstances in a negative light, anyone who has ever worked in a busy clinic will be all too familiar with such a picture. Indeed, it might be true to say the concepts of time pressure and busy (even crowded) clinical settings are part of everyday professional practice. The development of strategies to effectively manage these aspects of professional life are essential and, as indicated in the earlier introduction, such transferable skills are attributes which employers look for in new graduates.

Pharmacy Students

Although the figures did not reach statistical significance for all items there was a trend towards an increase in pharmacy students' confidence for the following activities:

- patient consultation;
- information gathering;
- communication with other health professionals;
- taking a drug history and
- documenting a drug history.

Drug related problems are a focus for the NHS and there is a need for pharmacists to be trained in the identification and resolution of these problems. The ability to build constructive relationships with other members of the primary healthcare team are seen as essential attributes for pharmacists in primary care in order that prescribing issues can be more effectively resolved (Mason, 1999). The development of such relationships may encourage the opportunity for advice and support to be provided in a consistent and cohesive manner. The features of an effective team indicated by Embling (1995) of shared goals, cooperation, coordination, division of effort whilst maintaining task specialisation in an environment of mutual respect remain the cornerstone of effective multidisciplinary team work today. Mandy (1996) suggested that integrated undergraduate education is key to overcoming potential barriers between team members and thus provides an important step in developing the key features of an effective team.

The results relating to the higher level skills of analysis and critical appraisal also indicated increased confidence levels. At the end of the placement programme more students indicated that they were now very confident and fewer indicating they had little confidence following the project. It has been pointed out that clinical knowledge needs to cover not only an understanding of pharmacology and therapeutics, but also the broader skills of critical appraisal and education (Jesson and Wilson, 1999: Mason, 1999). The use of an out-patient joint clinical placement would appear to be one way in which improvement in these skills can be achieved successfully. Anecdotal feedback from the tutors involved in the project suggests that the joint case conferences where staff and students alike can share their experiences are an important forum to further develop students' critical appraisal skills, wider use of such forums should be considered.

Themes Common to Both Student Groups Arising from the Data

Relevance of "core" or Common Topics

The factor common to both groups in this placement was the involvement of patients as a focus for students learning. Comments from podiatry students highlighted in table three indicated that they found it useful observing the pharmacy students highly structured approach to patient history taking. Miller *et al.* (1999) suggested that the assumption that some knowledge is common to all professions (i.e. anatomy is anatomy regardless of who is learning the subject) may be flawed. Therefore, to assume all students (and health professionals) take a drug history in the same manner may be equally suspect. This interpretation is supported by data obtained in this study. For students to achieve the aims of shared learning reported elsewhere (SCOPME, 1997; Stew, 2000), it may be more appropriate to adopt an approach whereby different professions demonstrate how they manage a problem which may be common to all. The results of this joint placement suggest such an approach can be successful, particularly if students have the opportunity to apply this knowledge in their own practical setting.

Deep Learning

This project being designed to fulfil some of the requirements which Dacre and Fox (2000) suggest are key principles of adult learning and correlate strongly with a deep rather than surface learning approach. These principles include the use of real life cases, the role of tutors as supportive facilitators assisting with students understanding of history taking, diagnostic processes and the extrapolation of what students can learn from their case histories. In this study, there were also opportunities to assist students in determining where their strengths and weaknesses lie. This self-directed approach where students take the initiative for their own learning by, for example, diagnosing their own learning requirements is thought to encourage the adoption of a deeper approach to the learning process (Spencer and Jordan, 1999). The anecdotal comments from some students indicated that this joint placement had encouraged them to identify gaps in their knowledge regarding pharmacology, while others commented that they now considered pharmacology in a more in-depth manner as part of their overall patient management. This reflection and identification of learning needs is to be encouraged as deep learning styles have been shown to correlate positively with a good performance in final examinations (McManus *et al.*, 1998). Furthermore, if such an approach can be fostered at undergraduate level this may be one way in which the continuing professional development (CPD) needs of clinicians can continue to be identified as part of the lifelong learning for all philosophy recently set out by the Department of Health (2000).

CONCLUSION

Providing the necessary levels of commitment, cooperation and a willingness to share are present, this pilot study has demonstrated that interfaculty shared learning in the clinical setting can be an effective learning and teaching strategy for undergraduate healthcare students.

Acknowledgements

We thank the students who took part in the study and the assistance of Dr K Springett and Professor A Moore for helpful comments on earlier drafts.

References

Barr, H. (1994) *Perspectives on shared learning*, London, CAIPE.
Cox, B. (1994) *Practical Pointers for University Teachers* (Kogan Page, London), pp 24–25.
Dacre, J.E. and Fox, R.A. (2000) "How should we be teaching our undergraduates?", *Annals Rheumatic Disease* **59**, 662–667.
Dawson, L., Wright, J., Springett, K. and Stew, G. (2002) "Evaluation of shared learning", International Conference Occupational Therapy and Physiotherapy, Belgium.
Department of Health (1993) *Targeting Practice: The Contribution of Nurses, Midwives and Health Visitors* (HMSO, London).
Department of Health (1999) *Review of Prescribing Supply & Administration of Medicines (Final Crown Report)* (HMSO, London).
Department of Health (2000) *Meeting the Challenge: A Strategy for the Allied Health Professions*. London: Department of Health (www.doh.gov.uk/meeting the challenge), pp. 23–32.
Embling, S. (1995) "Exploring multidisciplinary teamwork", *British Journal of Therapy and Rehabilitation* **2**(3), 142–144.
General Medical Council (1995) *Duties of a Doctor: Guidance From the General Medical Council* (GMC, London).
Griffiths, R. (1988) *Community Care—Agenda for Action* (HMSO, London).
Jesson, J. and Wilson, K. (1999) "Primary care pharmacists: a conceptual model", *The Pharmaceutical Journal* **263**, 62–64.
Mandy, P. (1996) "Interdisciplinary rather than multidisciplinary or generic practice", *British Journal of Therapy and Rehabilitation* **3**(2), 110–112.
Mason, P. (1999) "Opportunities for pharmacists in primary care", *Primary Care Pharmacy* **1**(1), 3–5.
McManus, I.C., Richards, P., Winder, B.C., Sproston, K.A. and Vincent, C.A. (1993) "The changing clinical experience of British medical students", *The Lancet* **341**, 941–944.
McManus, I.C., Richards, P., Winder, B.C. and Sproston, K.A. (1998) "Clinical experience, performance in final examinations and learning style in medical students: prospective study", *British Medical Journal* **316**, 345–350.
Miller, C., Ross, N. and Freeman, M. (1999) *Shared Learning and Clinical Teamwork: New Directions in Education for Multiprofessional Practice* (English National Board for Nursing, Midwifery and Health Visiting, London), pp 86–101.
NHS Executive (1995) *Education and Training Planning Guidance, (EL95)96)* (NHSE, Leeds).

NHS Executive (1996) *Education and Training Planning Guidance, (EL96)46)* (NHSE, Leeds).

NHS Executive (1997) *Devolution of Responsibilities to the NHS Consortia, (EL97)30)* (NHSE, Leeds).

SCOPME (1997) *Multiprofessional Working and Learning: Sharing the Educational Challenge* (The Standing Committee on Postgraduate Medical and Dental Education, London).

Secretary of State for Health (1992) *The Health of the Nation* (HMSO, London).

Spencer, J.A. and Jordan, R.K. (1999) "Learner centred approaches in medical education", *British Medical Journal* **318**, 1280–1283.

Stew, G. (2000) "Interprofessional learning—an evaluation", In:Bourner, T., Katz, T. and Watson, D., eds, *2000 New Directions in Professional Higher Education* (St Edmondsbury Press, London), pp 52–59.