Continuing Medical Education in Clinical Pharmacology and Therapeutics: report of a questionnaire survey

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Aims To seek the views of medically qualified members of the Clinical Section of the British Pharmacological Society (BPS) on their perceived needs for Continuing Medical Education (CME); on how and by whom these needs should be addressed; and on how the outcome of any educational intervention might best be assessed.

Methods A structured questionnaire.

Results Of 233 recipients, 140 (60%) responded, but only 123 of these fulfilled the criteria for analysis. A large majority of respondents were clinicians, most of whom devoted at least 25% of their working week to their NHS commitment. There was widespread reliance on textbooks and journals as sources of CME, supplemented by discussions with specialist peers at national and international meetings. Many felt that fulfilling even this agenda was stretching their commitment to the limit, and their greatest need was for protected time in which to learn. There was a desire among 49% of all respondents for the BPS Clinical Section to take some responsibility for addressing the future needs of its members, and 75% took the view that academic departments should contribute to the development and updating of materials. There was no clear agreement about what these should comprise, but around half of all respondents favoured web-based, journal-based or computer-assisted educational material offering self-assessment opportunities; and CME symposia or workshops at BPS meetings. Almost half (46%) felt that assessment of CME should be integrated with a well-organized appraisal system and the use of portfolios. Six out of 10 respondents were already, or were about to be, regularly appraised at their place of work.

Conclusions The questionnaire survey revealed a broad canvas of views and little evidence of consensus except for a general plea for more time in which to learn. The aim of the Clinical Section should be to facilitate and help its members to organize their learning, in a way that is consistent with national trends in Continuing Professional Development. The Clinical Section should co-ordinate the setting up of an electronic library of appropriate published material, compiled by academic and industrial sources, that would guide members seeking up-to-date knowledge of Clinical Pharmacology and Therapeutics. The British Journal of Clinical Pharmacology (BJCP) should commission review articles on recent developments where no suitable published material exists. Academic departments should also be invited to identify or develop self-assessment material that members could use to reinforce their learning, and demonstrate their knowledge to relevant professional bodies. The Clinical Section should organize Symposia and Workshops at which contentious issues in Clinical Pharmacology and Therapeutics can be discussed and resolved.

Keywords: clinical pharmacology, continuing medical education, continuing professional development, revalidation, therapeutics

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Introduction

The challenge of maintaining professional competence in an environment characterized by rapid organizational change, information overload, and increasing public expectations is forcing doctors to think hard about medical education [1]. In countries where re-certification systems are in place, these are based mainly on documented participation in formal educational activities, while actual performance is seldom subject to assessment. The impact of credit hours of traditional courses on the quality of practice is disputable. Davis *et al.* [2] reviewed 14 randomised, controlled trials of formal didactic/interactive Continuing Medical Education (CME) interventions (conferences, courses, rounds, meetings, symposia, lectures, and other formats), in which at least 50% of the participants were practising physicians. They found that the only sessions that had a significant effect on professional practice were those that involved an interactive technique, such as case discussion, role-play, or hands-on practice.

Traditional CME may have impeded development of more effective ways of promoting continued learning. The purpose of CME is to facilitate change in clinical practice among individuals and organizations [3]. It must be planned to meet the needs of doctors and based on both self-assessment and peer review [1]. The basis for planning of CME by the professional organizations responsible for medical training is the identification of learning needs. Adult learning theory and knowledge of how professionals maintain and develop competence are placing increased emphasis on self-directed learning. Educators need to understand the natural patterns of doctors' learning so that they can design learning programmes and experiences that complement self-directed learning [3]. To be able to deliver high quality CME, medical colleges and societies need to improve their educational competence [1].

Periodic revalidation is likely to be introduced in most countries in the coming years, even before the systems have been shown to enhance patient care [4]. Different countries in the developed world have used varied approaches to assessing professional competence. In the USA, almost all the boards of the American Board of Medical Specialists issue time-limited certificates for periods of 7–10 years. The process involves a test of the doctor's knowledge and problem solving skills using multiple choice examinations. Postgraduate colleges in Australia and Canada have elected not to incorporate formal examinations into their re-certification processes on the grounds that legally defensible examinations assess a limited range of competencies. Instead, maintenance of certification is based on participation in educational and quality improvement activities. Traditional provider-centred CME that updates doctors' biomedical knowledge

is replaced by learner-centred activities that facilitate team learning and performance enhancement in multi-disciplinary practice settings.

In Australia the RACP has incorporated criteria that relate more closely to doctors' performance than attendance at traditional CME activities. Participation in quality improvement activities, such as practice audits, and the college's physician assessment programme, in which ratings from peers are sought on a range of professional and personal attributes in the practice setting, is essential for continuing certification.

In Canada, doctors will be required to submit at regular intervals the summaries of selected patient encounters extracted from electronic records. The Canadian Maintenance of Competence Programme (MOCOMP), a portfolio-based documentation of individual learning, acknowledges that learning takes place daily in the practice environment and provides a system for documenting such learning. Patient and peer assessment surveys will be used to assess interpersonal and doctor-patient communication skills. Electronic learning portfolios will facilitate the link between continuing learning and performance enhancement. In Denmark and Norway, audit and peer review have been used as the basis for quality improvement initiatives in general practice [1].

In the United Kingdom, the General Medical Council (GMC) has proposed that all doctors (including those in nonclinical practice) should prove their continuing fitness to practise. To this end, they will be expected to maintain a folder of information about their performance, and the steps they are taking to stay up to date and to develop professionally. This folder will form the basis for regular review as part of the local annual appraisal process at the doctor's place of work, and for the 5 yearly assessment by the GMC, on which revalidation will depend.

To support the system of specialist accreditation in the UK, the joint Colleges of Physicians are actively developing formal educational and assessment material for CME [5]. Many physicians working within the NHS have registration in general (internal) medicine and another specialty. The Colleges intend to supervise CME programmes in general medicine, but are discussing with specialist societies how to provide CME in their respective disciplines.

The committee of the Clinical Section of the British Pharmacological Society (BPS) decided, towards the end of 1999, to seek the views of those members who are potential recipients of any educational initiatives before deciding what recommendations to put forward. The objectives of the survey were:

- to identify the perceived needs of medically qualified members of the Clinical Section for CME;
- to seek their views on how and by whom these needs should be addressed; and

- to enquire how the outcome of any educational intervention might best be assessed.

Methods

Given the modest size of the membership, a complete sample was possible. A questionnaire was designed to solicit the relevant information and piloted among a handful of senior members. It asked individuals about their place of employment, their clinical commitment, the existence of a local appraisal system, and what sources they currently turned to for their CME. It then asked what additional or future needs they could identify for CME, how these needs should be provided for, and how the outcome of an individual's involvement in CME can best be assessed. The questionnaire ended with a series of ideological statements with which respondents were invited to state their level of agreement. The questionnaire was distributed with an explanatory letter, a prepaid envelope, and a 'shortcut' reply facility for those no longer registered or not likely to be subject to revalidation by the GMC. One reminder letter was sent out after 1 month.

Table 1 The place of work, clinical commitment to the NHS, whether respondents were regularly appraised and the sources they relied on for CME

<i>Primary employer</i>	
The NHS	22 (18%)
A university	44 (36%)
The NHS and a university	29 (24%)
A pharmaceutical company	8 (7%)
A clinical research organization	9 (7%)
Other	11 (9%)
<i>Proportion of working week occupied by clinical activity</i>	
<25%	38 (31%)
25–50%	44 (36%)
>50%	41 (33%)
<i>Regular appraisal at place of work</i>	
Yes	62 (51%)
No	48 (39%)
Due to start soon	12 (10%)
<i>Current sources of continuing medical education</i>	
Articles in clinical pharmacology journals	112 (91%)
Articles in other specialist medical journals	113 (92%)
Articles in general medical journals	114 (93%)
Textbooks	82 (67%)
Web-based information sources	67 (55%)
Discussions with other clinical pharmacologists	80 (65%)
Pharmaceutical company in-house training sessions	10 (8%)
Pharmaceutical company advisory boards	24 (20%)
Communications at BPS meetings	59 (48%)
Meetings of other specialist societies	94 (76%)
International conferences	94 (76%)
Other	24 (20%)

Results

The secretariat trawled the membership lists and identified 233 with a medical qualification, all of whom received the questionnaire. In all, 140 replies were received (60%). Of these, 17 were from doctors who were either completely retired (13), unregistered (1), or did not consider themselves clinical pharmacologists (3), leaving 123 completed questionnaires for analysis.

The current position

Table 1 shows the place of work, the clinical commitment to the NHS, whether respondents were regularly appraised, and the sources they relied on currently for their CME. Just over three-quarters of those whose questionnaires were analysed were employed by either a university (36%) or the NHS (18%), or both (24%). The remainder were employed by the pharmaceutical industry (7%) or a clinical research organization (7%), or were self-employed consultants (9%). The proportion of their working week occupied by clinical activity varied widely from <25% (31%) to >50% (33%), with the remainder (36%) having an intermediate (25–50%) commitment. Some, but not all, industrial clinical pharmacologists considered their volunteer studies beneath this heading. When only those members with a clinical commitment to the NHS were considered, the equivalent figures were <25% (16%), >50% (41%) and 25–50% (43%); 84% therefore had a substantial clinical commitment. When asked whether they underwent regular appraisal at their place of work, 60% of all respondents replied that they either did currently or were about to start.

Respondents were accustomed to using a variety of different sources for their CME. The majority referred to articles in clinical pharmacology or other specialist journals (91%), general medical journals (92%), textbooks (67%) and web-based information sources (55%), but also relied on discussions with other clinical pharmacologists (65%) and communications at meetings of the BPS (48%) or other specialist societies (76%), or at international meetings (76%). In free text responses several respondents mentioned local clinical meetings (grand rounds) as another useful source.

Future requirements

Table 2 shows the perceived future needs of respondents for CME, how they thought these needs should be provided for, and how their involvement in CME should be assessed. When asked to identify additional/future needs for CME, there was less agreement. Half of all respondents (51%) expressed a desire for more computer-assisted learning material, and just under half

(44%) said they would like more material offering self-assessment opportunities, but the most popular need, identified by 58% of respondents, was for more ring-fenced time for learning.

Table 2 Perceived future needs for CME, its provision and assessment

<i>Additional/future needs for CME</i>	
More printed CME material	45 (37%)
More computer-assisted learning material	63 (51%)
More material offering self-assessment opportunities	54 (44%)
More professional meetings	16 (13%)
More formal teaching (e.g. lectures/seminars)	27 (22%)
More informal teaching (e.g. tutorials/workshops)	43 (35%)
More assessment	9 (7%)
More peer review/external audit	23 (19%)
Better appraisal of learning needs	37 (30%)
More ring-fenced time for learning	71 (58%)
Other	15 (12%)
<i>Providing for additional/future needs</i>	
Purpose-designed printed material	39 (32%)
Journal-based printed material (e.g. BJCP)	58 (47%)
Web-based educational material	65 (53%)
Interactive problem-solving material on CD-ROM	54 (44%)
Special CME sessions (e.g. symposia) at BPS meetings	68 (55%)
Small group CME sessions (e.g. workshops) at BPS meetings	58 (47%)
Regional CME workshops	45 (37%)
Other	11 (9%)
<i>Assessment of CME</i>	
Successful completion of paper/electronic knowledge-based assessment (e.g. MCQs)	40 (33%)
Peer group audit	33 (27%)
Professional development portfolios/logbooks	56 (46%)
Within a well-organized appraisal system	56 (46%)
Documented changes in practice	13 (11%)
Don't know	17 (14%)
Other	15 (12%)

Views on the provision of these needs varied widely, the most popular being for CME symposia (55%) or workshops (47%) at BPS meetings, although similar numbers expressed a preference for web-based (53%) or journal-based (47%) educational material, and slightly fewer for interactive problem-solving material on CD-ROM (44%).

When asked for their opinions on how the outcome of their involvement in CME should be assessed, there was much uncertainty. The largest bodies of opinion expressed a preference for either portfolios/logbooks (46%) or for assessment to occur within a well-organized appraisal system (46%).

The survey ended with five statements, with which respondents were asked to state their level of agreement (Table 3).

Almost half (49%) agreed that the Clinical Section should take responsibility for addressing the needs of its members for specialist CME, though a third (32%) were undecided on this issue.

Three-quarters (75%) agreed that individual academic departments should contribute to the development and updating of learning materials.

A small majority (54%) agreed that assessment of CME should always involve some valid measure of learning outcome.

There was dissent on whether credit for attendance at national/international conferences should require evidence that new knowledge had been disseminated to colleagues (39% agreed, 42% disagreed, while 19% were undecided).

There was dissent on whether the needs of clinical pharmacologists for CME were so diverse that no discrete core of knowledge could be identified that would be generally useful (35% agreed, 43% disagreed, while 22% were undecided).

Table 3 Opinions about CME

<i>Statement</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
The BPS Clinical Section should take responsibility for addressing my needs for specialist CME	9 (7%)	52 (42%)	39 (32%)	18 (15%)	4 (3%)
Individual academic departments should contribute to the development and updating of learning materials	9 (7%)	83 (68%)	21 (17%)	8 (7%)	2 (2%)
Assessment of CME should always involve some valid measure of learning outcome	11 (9%)	55 (45%)	35 (29%)	18 (15%)	3 (3%)
Credit for attendance at national/international conferences should require evidence that new knowledge has been disseminated to colleagues	6 (5%)	41 (34%)	23 (19%)	46 (38%)	5 (4%)
The needs of clinical pharmacologists for CME are so diverse that no discrete core of knowledge can be identified that would be generally useful	9 (7%)	34 (28%)	27 (22%)	51 (42%)	1 (1%)

Given their differing work environments, it seemed possible that not all respondents would take the same view on these issues. However, the pattern of responses among those 95 members with a clinical commitment to the NHS did not differ significantly from that overall.

Discussion

The sampling method used seems to have been adequate for the purpose and a 60% response yielded sufficient useful forms to analyse. The pattern of responses suggests that the questions were sufficiently searching to reveal differing needs and shades of opinion about CME and its delivery. A large majority of respondents were clinicians, most of whom devoted at least 25% of the working week to their NHS commitment. Their opinions tend to dominate the survey's conclusions, but no clear subgroup could be identified within which opinions differed consistently from those of the overall sample.

The survey revealed a broad canvas of views and little evidence of consensus, aside from the widespread reliance on textbooks and on general and specialist journals as sources of CME, supplemented by discussions with specialist peers at national and international meetings. Many felt that fulfilling even this agenda was stretching their commitment to the limit; the idea that the BPS might add to this burden met with little enthusiasm. The greatest need, best illustrated by the following free text comments, was for protected time in which to learn:

'we are overloading (ourselves) with information and assessment; all reduce time at the bedside and this is one of the main determinants of quality of care'

'I don't particularly want any more learning experiences! There is an opportunity cost to all of this that I cannot afford at present'

'I think there is plenty out there but insufficient time to access it'
'free time is my greatest need'

There was a desire among around half of all respondents for the BPS Clinical Section to take some responsibility for addressing the future needs of its members, and three out of four took the view that academic departments should contribute to the development and updating of materials. There was no clear agreement about what these should comprise, but the following options found favour with around half of all respondents:

- web-based or journal-based educational material;
- more computer-assisted learning material;
- more material offering self-assessment opportunities;
- CME symposia or workshops at BPS meetings.

Few had given much thought to how their involvement in CME should be assessed. More than half agreed that there should always be some measure of learning outcome,

but there was little support for the idea that this should involve dissemination of the information to colleagues, even though the main value of this would be to reinforce individual learning. Of those prepared to advance an opinion, most favoured the integration with a well-organized appraisal system and the use of portfolios. Six out of 10 respondents were already, or were about to be, regularly appraised at their place of work.

These results imply that self-directed learning forms the cornerstone of CME for these respondents. Specialists in CPT are scarce and rely heavily for their continued specialist learning upon published material (paper or electronic) and meetings with their specialist peers. Their expressed desire for interactive material offering opportunities for self-assessment, which scored at least as highly as that for symposia and workshops, is consistent with the growing awareness that this approach is more likely to effect change in practice than traditional CME. On the subject of assessment their ideas were less clear, although many had accepted that portfolios and logbooks were probably the least threatening way to measure learning and assess competence. Overall, the opinions revealed are consistent with current international developments in the planning and provision of CME.

It is important to distinguish between CME and CPD (Continuing Professional Development). CME forms merely one element of CPD. It is the responsibility of one's employer, through workplace appraisal, to assess individual performance and ensure that each employee is competent to carry out the role for which he/she has been appointed. One's personal development plan comprises those training needs identified during appraisal, some of which can be satisfied by CME.

The following proposals take account of these views, but they also draw heavily on 'The Good CPD Guide - a practical guide to managed CPD' [6], and other recently published material [1-4].

Proposals

Change and learning are part of a doctor's life. The most important factor that motivates continuous learning and change among doctors is their desire to be more competent in the delivery of health care—regulations have little impact. The essential stimulus to continued learning and the development of competence is clinical problem solving [1]. Figure 1 sets the proposals in context and illustrates how the different elements relate to totality of CPD. The proposals comprise:

- a coordinated attempt to signpost learning resources;
- the collation (and, if necessary, development) of self-assessment material;
- and the organization of symposia and workshops.

Figure 1 Continuing Professional Development in CPT. Starting at the Doctor-patient encounter, the first loop describes the elements of on-the-job learning. This generates learning needs which, once addressed and reflected on, can be entered into a learning portfolio. Compiling the latter reveals learning objectives that may require a wider search for knowledge, or even further training. These are fed into the appraisal system to derive a personal development plan, so that time can be ring-fenced for their fulfilment (off-the-job learning). Both on-and off-the-job learning can contribute to shared learning with one's colleagues that results, ultimately, in increased team competence. FAQ = Frequently asked questions; DTC = Drug & Therapeutics Committee; CSM = Committee on Safety of Medicines.

Signposting learning resources

The aim of the Clinical Section should be to facilitate and help members to organize their learning, rather than adding to an activity that is already consuming much of their time and energy. Having identified a learning need, doctors adopt different strategies. Some refer to a recent textbook, others to published guidelines or recent review articles in journals, while others search computer databases of published literature. The information these approaches yield accrues in proportion to the time spent looking for it. Such activity may not result in the learning need being addressed, largely because the new knowledge sought has to be filtered from a mass of related facts and opinions, some already familiar to the learner, others unfamiliar but irrelevant. Clinical pharmacologists encounter this difficulty all too often: information about how medicines work, how they should be used and how they compare with each other can seldom be found in a single resource, and much filtering is necessary before one's thirst for knowledge is satisfied. How much better it would be if

one could be directed to the answer by a route map, drawn up by someone who had searched for the same information before. Those devising these maps, because of their expertise in the topic, would already have compared the various resources and sorted the wheat from the chaff.

What information would one ask the expert to provide? Imagine you are giving an update on the medicines in question to an audience of postgraduate trainees, and the organizer has asked for a further reading list to which the trainees can refer for guidance both before and after the encounter. The result would be a selected list of reading material containing enough information for the trainees not only to use those medicines safely and effectively, but also to cascade the knowledge reliably to others.

Academic departments of Clinical Pharmacology could be invited to compile resource lists of this type, starting with their particular areas of expertise. The lists would be collated by the BPS, transferred to a web-site accessible to members, but also made available on paper with Society mailshots. Where existing resources were deemed inadequate, as might well be the case for a new line of drug

treatment, a review of the topic could be commissioned for this journal, linking the basic science to the practicalities of drug choice and use – the pharmacology to the therapeutics. The review would carry the mortarboard symbol to signify its suitability for CME.

Self-assessment material

When invited to compile resource lists for members to access, academic departments would also be asked to identify (or, if necessary, develop) self-assessment material that members could use to reinforce their learning by testing recall and understanding. This could take the form of MCQs or more complex problem-solving material, available via the web-site or on paper. Such material will be made available to the Colleges of Physicians in order that it can be validated and used to assess individual performance, and to provide a record of activity.

This approach seems straightforward enough. But clinical pharmacologists vary so much in how they practise their discipline that it is difficult to find any two alike. Before one can decide the scope of any request for educational material, it will be necessary to define a core of knowledge and skill common to all specialists in the discipline. Just what should the public expect of an individual who professes to specialize in Clinical Pharmacology and Therapeutics? The Clinical Section has commissioned a Delphi study to clarify this issue.

Symposia and workshops

A useful review article requires consensus, but the practical implications of some developments in Clinical Pharmacology and Therapeutics take a while to become clear. Until they do, there may be disagreement about the correct interpretation of research findings or how these should be implemented. Where there is a need for discussion and debate, this could be arranged within the context of a BPS meeting. This would take the form of a symposium/workshop where, after setting the scene to bring knowledge and understanding to a common level, an attempt would be made either to resolve the areas of contention and uncertainty and achieve consensus, or to identify the need for, and the shape of, further research. The proceedings of such meetings could be recorded and made available to members directly or after publication.

The discussion thus far has focused on the provision of CME for those members who have a clinical commitment to the NHS, who comprise the majority of the Clinical Section's membership. What about the significant minority of members who work within the pharmaceutical industry or in clinical research organizations, or for the Regulatory Authority? Many of these individuals will look

to the Faculty of Pharmaceutical Medicine to oversee and document their CME, but the Clinical Section should not overlook their needs for continuing education in clinical pharmacology, which overlap with those of specialists in Clinical Pharmacology and Therapeutics. There is a core of knowledge and skill common to both which would be reinforced by regarding industrial clinical pharmacologists as another academic constituency from which educational material, some core, some specific to the needs of its members, can be sought. By addressing the needs of both professional groups the Clinical Section will help to preserve and strengthen the historical bonds between them, as well as fostering future collaboration.

Conclusions

The questionnaire survey of BPS Clinical Section members, carried out in late 1999, revealed a broad canvas of views and little evidence of consensus except for a general plea for more time in which to learn.

Respondents tended to rely on textbooks and on general and specialist journals as sources of CME, supplemented by discussions with specialist peers at national and international meetings.

Around half of all respondents wanted the BPS Clinical Section to take some responsibility for addressing their future needs.

The aim of the Clinical Section should be to facilitate and help its members to organize their learning, rather than adding to an activity that is already consuming much of their time and energy.

The way in which the Clinical Section performs this role should be consistent with the wishes of its members and with national trends in CPD.

The Clinical Section should coordinate the setting up of an electronic library of appropriate published material, compiled by academic and industrial departments, that would guide members seeking up-to-date knowledge of Clinical Pharmacology and Therapeutics.

The BJCP should commission review articles on recent developments where no suitable published material exists.

Academic and industrial departments should be invited to identify or develop self-assessment material that members could use to reinforce their learning, and demonstrate their knowledge to their respective professional bodies.

The Clinical Section should organize Symposia and Workshops at which contentious issues in Clinical Pharmacology and Therapeutics can be discussed and resolved.

These initiatives require that knowledge and skills common to all specialists in Clinical Pharmacology and

Therapeutics be identified and a Delphi study has been commissioned to address this issue.

The Clinical Section should use this opportunity to preserve and strengthen the links between different constituencies of its membership.

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